[76]   Moreover, representative examples of polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more of the sequences delineated in the same row of Table 1B column 6, or any combination thereof. Additional, representative examples of polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more of the complementary strand(s) of the sequences delineated in the same row of Table 1B column 6, or any combination thereof. In preferred embodiments, the polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more of the complementary strand(s) of the sequences delineated in the same row of Table 1B column 6, wherein sequentially delineated sequences in the table (i.e. corresponding to those exons located closest to each other) are directly contiguous in a 5' to 3' orientation. In further embodiments, above-described polynucleotides of the invention comprise, or alternatively consist of, sequences delineated in the same row of Table 1B, column 6, and have a nucleic acid sequence which is different from that of the BAC fragment having the sequence disclosed in SEQ ID NO:B (see Table 1B, column 5). In additional embodiments, the above-described polynucleotides of the invention comprise, or alternatively consist of, sequences delineated in the same row of Table 1B, column 6, and have a nucleic acid sequence which is different from that published for the BAC clone identified as BAC ID NO:A (see Table 1B, column 4). In additional embodiments, the above-described polynucleotides of the invention comprise, or alternatively consist of, sequences delineated in the same row of Table 1B, column 6, and have a nucleic acid sequence which is different from that contained in the BAC clone identified as BAC ID NO:A (see Table 1B, column 4). Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[77]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more of the sequences delineated in column 6 of Table 1B, and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1B, column 2) or fragments or variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[78]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more of the sequences delineated in column 6 of Table 1B which correspond to the same Clone ID NO:Z (see Table 1B, column 1), and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1A or 1B) or fragments or variants thereof. In preferred embodiments, the delineated sequence(s) and polynucleotide sequence of SEQ ID NO:X correspond to the same Clone ID NO:Z. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[79]   In further specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more of the sequences delineated in the same row of column 6 of Table 1B, and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1A or 1B) or fragments or variants thereof. In preferred embodiments, the delineated sequence(s) and polynucleotide sequence of SEQ ID NO:X correspond to the same row of column 6 of Table 1B. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[80]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of the sequence of SEQ ID NO:X are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[81]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of a fragment or variant of the sequence of SEQ ID NO:X are directly contiguous Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent

hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids; other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[82]   In specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, a polynucleotide sequence in which the 3' 10 polynucleotides of the sequence of SEQ ID NO:X and the 5' 10 polynucleotides of the sequence of one of the sequences delineated in column 6 of Table 1B are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[83]   In specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, a polynucleotide sequence in which the 3' 10 polynucleotides of a fragment or variant of the sequence of SEQ ID NO:X and the 5' 10 polynucleotides of the sequence of one of the sequences delineated in column 6 of Table 1B are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides, are also encompassed by the invention.

[84]   In further specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of another sequence in column 6 are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization

conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[85]   In specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of another sequence in column 6 corresponding to the same Clone ID NO:Z (see Table 1B, column 1) are directly contiguous. Nucleic acids which hybridize to the complement of these 20 lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[86]   In specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, a polynucleotide sequence in which the 3' 10 polynucleotides of one   sequence in column 6 corresponding to the same contig sequence identifer SEQ ID NO:X (see Table 1B, column 2) are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[87]   In ·specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of another sequence in column 6 corresponding to the same row are directly contiguous. In preferred embodiments, the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B is directly contiguous with the 5' 10 polynucleotides of the next

sequential exon delineated in Table 1B, column 6. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[88]   Many polynucleotide sequences, such as EST sequences, are publicly available and accessible through sequence databases and may have been publicly available prior to conception of the present invention. Preferably, such related polynucleotides are specifically excluded from the scope of the present invention. Accordingly, for each contig sequence (SEQ ID NO:X) listed in the fourth column of Table 1A, preferably excluded are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 and the final nucleotide minus 15 of SEQ ID NO:X, b is an integer of 15 to the final nucleotide of SEQ ID NO:X, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:X, and where b is greater than or equal to a + 14. More specifically, preferably excluded are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a and b are integers as defined in columns 4 and 5, respectively, of Table 3. In specific embodiments, the polynucleotides of the invention do not consist of at least one, two, three, four, five, ten, or more of the specific polynucleotide sequences referenced by the Genbank Accession No. as disclosed in column 6 of Table 3 (including for example, published sequence in connection with a particular BAC clone). In further embodiments, preferably excluded from the invention are the specific polynucleotide sequence(s) contained in the clones corresponding to at least one, two, three, four, five, ten, or more of the available material having the accession numbers identified in the sixth column of this Table (including for example, the actual sequence contained in an identified BAC clone). In no way is this listing meant to encompass all of the sequences which may be excluded by the general formula, it is just a representative example. All references available through these accessions are hereby incorporated by reference in their entirety.

TABLE 3

Clone ID NO: Z	SEQ ID NO: X	Contig ID:	EST Disclaimer Range of a	Range of b	Accession #'s
HHMMC14	11	1152250	1 - 1314	15 - 1328	AI086374, AI985881, AI760724, AW025363, AI744911, AI417334, AI608898, AI185630, AI086397, AI419401, AI983536, AW250705, AA657972, W28944, AA767300, AA706825, AI587185, AI189408, AW248699, AW073190, AI347314, AI524186, AA563745, AA495799, AI168297, AI310528, AW130176, AA838407, AI955019, AI346558, AI356497, AI028668, AA917828, AW246849, AI140292, AI084924, AA232967, AI148985, AI678784, AI281328, AA948694, AI082557, AI150722, AI276605, AI014882, AI803268, AW169494, AI333698, AI333302, AA253369, AI740611, AI831634, AA670367, AI082804, AI080366, AA777091, AI816955, AI753298, AW028800, AI679052, AA764739, AI215157, AI393800, AA148919, AW404750, W49510, AI087262, AI197944, AI089710, T70527, AA253492, N54782, AI344641, AI460108, AI933303, AA315786, W79013, AI539484, T79608, AA076080, AI971904, AA300208, AI290314, AA677875, AI347377, AI183485, AA743340, AA775359, D63259, AA989095, AA507572, AA705697, W16716, R83908, AI362504, AA749447, AA708333, AI857590, W46838, AW069333, AA495736, AA410264, H57844, AA625770, N79535, AI262439, T68602, N90776, AA865920, W19200, AA306173, AA865906, AA099528, AW192370, W80405, AA234363, AA128388, AW249131, T30208, R83907, AA194982, N75707, AA362705, AI221840, AA458624, AI921358, AA194997, AA808409, AA588355, AA887944, AI264098, AA234413, C17057, W49511, N90242, AI245717, T16103, AI127393, AA255797, AA933878, AA557707, AA641364, AA256690, H63263, T34009, H38215, AA480658, AI041628, AA148891, AI587030, AA199839, T78631, T81385, AI368525, AA358466, N49510, AA336108, AA377553, AA309101, T72836, AI468707, AW131524, AI264469, AI283776, AI269350, H44001, AI080399, T81384, T68683, AI990425, T72355, N75325, AA199911, AA233135, AA846765,

					AI352057, AI954908, AI422513, AI434527, AA887052, AA406584, AA359371, F37868, W04776, AI311094, H37992, T79693, R82477, AI473295, AA552356, H59969, AI864371, AA479548, AA099527, AI695607, AA455531, AI924257, AA767829, T73246, F28542, AA428810, D25570, AA091800, AA805180, AA429337, R36837, AI241215, T41059, C20939, AA346761, AA173883, AA248560, AA808574, AA605086, AL036736, AF134895, AF146018, AF113251, and AF146689.
HSLEQ79	12	1184946	1 - 660	15 - 674	AA199788.
HUCME08	13	1082023	1 - 612	15 - 626	AW250705, W16716, W28944, AW404750, AA315786, AI460108, D63259, AA255797, AW249131, C17057, AI041628, AA148891, AA377553, T81384, T72836, T68683, T72355, AA309101, AA358466, AA359371, W04776, AI760724, W79013, AA199911, AA410264, AI311094, N49510, R36837, AI310528, N75707, AA605086, AI086374, AA495736, AF134895, AF146018, AF113251, and AF146689.
HNGOW33	14	1152254	1 - 1146	15 - 1160	AI526183, A38246, AR029496, A11542, AR029497, and A11524.
HT4GD03	15	1103896	1 - 1185	15 - 1199	AI468008, AI492094, AI970413, AI521923, AI028459, AI040406, AI333579, AA703357, AA252428, AI972753, AI964003, AI656960, AA877725, AI804669, AI682438, AI669759, AI624888, AW196667, AI638764, AI076149, AI832204, AI610987, AA625737, N90234, AI763375, AI535962, AW014594, AA670436, AI424567, AA576561, H61341, W39156, AW134874, AA541628, AI924201, AI198343, N93695, AI911538, AA766826, W21033, AI814342, AI991685, AA888820, AI366738, AW001123, C14331, C14429, D59859, AW177440, T03269, C14389, AW179328, D80188, AW178893, D51799, D58283, D80022, D80166, D80195, D80193, D59927, D59467, D51423, D59619, D80210, D80391, D80164, D59275, AW178762, D80240, D80253, D80043, D59787, D80227, D59502, AW378532, D81030, AW352117, D80212, D80196, D80219, C15076, D80269, D57483, D59610, D80038, D80366, AA305409, D51022, D50979, D50995, D59889, D80024, AW177501, AW177511, AW360811, D80378, AW176467, AW375405, C14014, AW178775, D80241, AA305578, AI557751, D80045, D51060, AI905856, AW377671, AW179332, AW352158, AW366296, AW360844,

					AW360817, C75259, D80248, D81026, AW375406, AW378534, AW377672, AW179023, AW178905, AA514188, AW378540, AW352171, D80522, AW377676, AW352170, D80251, AW177731, AW179329, AW178907, AW378528, AW179019, AW179024, AW360834, AA514186, D80133, AW178906, AW177505, AW179020, D80134, AW178909, AW177456, AW178980, AW177733, AW178908, AW178754, AW179018, D58253, D51097, AW179004, C05695, D80439, D80268, AA809122, AW178914, AW178774, D80247, AW378543, AW378525, AW178911, T48593, F13647, D80302, D80132, AW178781, AW352163, D51103, AA285331, C14227, AW178983, AI935359, D80064, D80157, AW367950, C06015, AW177723, AW178986, AW367967, D80314, T11417, AI535959, AW352174, AW378533, D45260, AI535686, D58246, D59503, C03092, H67854, AF077740, Z97630, AF093403, A84916, A62298, Y17188, AR018138, A62300, X82626, Y11505, D88547, A78862, X67155, A67220, D89785, A30438, D34614, D26022, AJ132110, A25909, X68127, AF058696, U79457, AR008278, AR025207, Y12724, A82595, AB028859, AR008443, Y17187, A94995, AB012117, I50126, I50132, I50128, I50133, AR066488, AR060385, AR016514, AR060138, D50010, A45456, A26615, AR052274, A85396, AR066482, Y09669, A44171, AB002449, AR066487, A85477, I19525, A43192, A43190, AR038669, A86792, AF135125, X93549, D88507, U46128, AR016691, AR016690, I18367, A63261, D13509, AR060133, AR066490, A70867, AR008408, AR062872, A64136, A68321, I14842, AF123263, AR054175, AR008382, and AW772362.
HAQBZ89	16	949061	1 - 311	15 - 325	AL042537, and W16450.
HCCCC81	17	949062	1 - 1297	15 - 1311	AI436552, AW071796, AI299053, AI334145, AI161282, AI613263, AI018067, AI921361, AI934889, AI984679, W52097, AI281829, AA236375, AA121294, AI342850, W16450, AA729045, AA608803, N78654, AW135827, AW193167, AI689644, N46334, AI159772, AA456075, AA130122, N63941, N58535, AA367722, AL042537, AA969946, AI432541, AA781924, AA829498, AW304842, AI299054, T69736, AW194058, AW170746, AI382899, AA862441, AA257021, AA345125, AI049756, AI983846,

					AI129698, T70395, AA130159, AA455578, AA833560, AW351523, AL119457, AW392670, Z99396, AL119324, U46351, AL119391, AL119319, U46347, AL119497, U46350, AL119484, U46341, AW372827, AW384394, AA451639, AW363220, AL119355, AL119363, U46349, AL037205, AL119443, AL119401, AL119522, AL119439, AL119444, AL119483, AL119341, U46346, AL134531, AL119418, AL134525, AL134536, AL119396, AL119335, AL042544, AL134902, AL134533, AL134528, AL119399, AL043019, AL119496, AI142132, AL134538, U46345, AL043033, AL042450, AL042542, AL042614, AL043003, AI205015, AL042984, AL039851, AL042965, AL042975, AL043029, AL042551, AL119464, AB026436, AR066494, AR054110, AR060234, A81671, and AR069079.
HE8PW83	18	927532	1 - 968	15 - 982	AA203427, AI650913, AI651056, AA707184, AI283739, AW135507, R10286, AA010205, AW296131, AA333931, W01187, AF121182, AB002584, and D38100.
HE9QQ22	19	949080	1 - 1062	15 - 1076	AA010242, R83190, N94219, N90644, T72234, N90655, T74930, N90629, N65959, R83191, D38100, and AB002584.
HFPFB39	20	946170	1 - 1601	15 - 1615	AI631883, AI767614, AA018867, R56792, AI497937, N95592, R44001, AW271411, R56793, Z38315, and Z42023.
HSDJI44	21	1151680	1 - 2531	15 - 2545	T11417, C14227, D81111, D58246, D80258, D80014, D59503, D80064, AA514184, AI535959, AI535686, AI557751, A38246, A11524, AR029497, E05333, E00893, and AR008408.
HE9DG38	22	1181748	1 - 1442	15 - 1456	AA911739, AI424010, AW082869, AI422406, R37777, H30676, R13816, F06133, Z39043, R37676, R13678, N55218, AA312035, N56305, R13983, AI792322, AI791644, and H28118.
HGBAT24	23	1024746	1 - 406	15 - 420	D57159.
HTDAF92	24	1181747	1 - 1147	15 - 1161	AA312035, AA911739, AI791644, AI792322, R13983, AI424010, AW082869, N56305, AI422406, H30676, F06133, R13816, R37777, R13678, and AI732836.
HAPSI19	25	668405	1 - 385	15 - 399	AI887474, AI065167, AI114842, AI951080, AI065047, AL048067, AL048071, AI458797, AI492547, AW192781, AI207495, C18171, AI829470, AI557340, AI583399, AI132960, AI132922, AA535634, AI749057, AI354562, AA575933, AI683809, AI587659, AI434930, AW304881, AI535650, AL035892, AW386749, AI207417, AA229325, AA640644,

					AI207635, AI366457, AI267618, AI253312, AI216975, AI061621, AW129679, AI557304, AI253355, AL047732, AW277017, AA877951, AI207605, AA907466, AA249196, AW152189, C18021, AW270589, AI032013, AI525006, AI064822, AA989707, AA659429, AI535927, AL035872, AA984251, AA211543, AI860329, AA640707, AA613407, AI986242, AA890612, AI246519, AW238199, AI525147, AI619468, AA577946, C18493, AI857866, AA096060, AA497076, AI744914, AI832323, AA226475, AA507318, AI537521, AA618220, AI547044, AA069628, AA650397, AI524901, AA194357, AA091279, AI873555, AI207704, AI830939, AA642880, AI444931, AI525077, AW055313, AI889303, AI613501, AL038700, AI635034, AA564933, AF114131, AI538877, AF114137, AI982985, AI499124, AA714588, AI473635, AI525125, AA093728, AW189279, AI625450, AW190310, AI064873, AW080936, AI253313, AL048424, AI444926, AA773464, AA093719, AI446678, AI923690, AA908867, AI557466, AA093577, AI872438, AI674287, AI828261, AA069350, AA575854, AW368670, AI476000, AI521680, AA215877, AI457454, AI924119, AA247775, AI872322, AA467795, AA742720, AA090236, AA468473, AA223645, AI689587, AW270766, AA654819, AA525471, AA878421, AA216330, AI633327, AI110748, AA714156, AI890503, AI890611, AA094521, AI923940, AI445741, AI986095, AI114837, AI114552, AI445647, AI635188, AI569437, AI610529, AI872097, AI571919, AA247792, AW131332, AI434972, AA641169, AA626558, AI827447, AA155969, AA232446, AI954505, AA548805, AA661698, AW070760, AW157238, AI492544, AI561046, AI925265, AI557015, AI491934, AA211022, AI908728, AI926739, AI627733, AA225388, AW167378, AW236356, AI587287, AI133265, AI708169, AA247479, W47670, W94397, AA487110, AA503983, AA714266, R28899, AW129752, AI799251, AI682933, R28753, AA507697, AI559959, AA095593, AI114444, AI829437, AI805758, AW166229, AI207623, AI434085,

					AI133611, AI735063, AI804593, N84318, AW169337, AW276945, AL042879, AL042878, AI525060, AA736905, AI922701, AA096227, AA654641, AI125883, AI002339, AI285432, AI538921, AA659838, AA878776, AI858460, AI002209, AI524959, AW129653, N84493, AI114702, AW190153, AA422155, I27365, AF035429, D38112, X93334, X62996, AF134583, V00662, J01415, D38116, X17503, D38114, X93347, X99256, D38115, and X97707.
HADTU18	26	666268	1 - 450	15 - 464	AA115399, AA180941, AI525779, AL048467, Z98468, AA180879, AL037961, AI132950, C18849, AI540982, AA503155, AA467916, AW270568, AA147875, AA523369, AA147138, C17914, AA248428, AA828615, AA610797, C17592, AA533146, AA468916, C17634, AA641056, AA182403, AA469384, AA131426, AA177092, AI535678, AL038782, AA548209, AI832713, AA181413, AI133326, C17520, AA533654, AA467874, AA468090, AA134092, AA469455, AA083296, AA214681, AI525553, AA194499, AA879244, AA178872, AA424930, AA192816, AA524630, C16951, AA650350, AA206277, AI525589, AA652263, AA229365, AA157661, AL048223, AA195788, AI557341, AA186485, AA579252, AI880907, AA229353, AI749086, AA180994, AA194687, AA112861, AI525178, AI557313, AA187125, AA194273, AI720611, AA522594, C17424, AI720582, AA132126, AA194546, AA737156, AA186996, AA178896, AA192817, AA130611, AI888059, AA469166, AA194505, AA182903, AA579030, AA091934, AA193156, AA523654, AI459469, AA165490, AA569535, AA180137, AA501707, AA176516, AA192574, AI557370, AA192670, AA579390, AI749735, AI557102, AA180873, AA879300, AA130827, AA478982, AA213947, AA745378, AA079046, AI601133, AI749789, AI557381, AA640278, AA531446, AA136007, AA179137, AI557088, C17077, AA213905, AA501537, AI564503, AI795888, AA188331, AI525571, AA197055, AI401656, AA156168, AI079227, AI888702, AL047719, AI039890, AA178848, AA143576, AA630148, AI721182, AA640922, AL035955, AI557043, AA182943,

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HNTEF53	27	954852	1 - 2342	15 - 2356	AA557324, AI655577, AI696732, AI923200, AA863360, AW262723, AI697332, AW275990, AI436648, AW276183, R56515, AI362521, R53456, R53457, D62878, AA337301, AA652746, AW264444, R56123, AA319338, D79346, D79250, N56346, AA886832, and AL138223.
HWLLB11	28	954849	1 - 731	15 - 745	AI745636, and AA102414.
HCRQK86	29	1193068	1 - 1477	15 - 1491	AI738595, AI968102, AA992363,

					AA595667, AI221343, AA551102, AI473733, AI953574, AA600319, AI138415, AI983106, AI088415, AI275031, AI969275, AI963252, AI365652, AI952001, AA121435, AA121689, AA888885, AW073176, AI953081, N64815, N64775, H52938, AI217079, H91146, AA328950, AA028190, AA034514, AA767177, AI143327, AA237008, AA719852, C15450, C15167, AW016668, AA333581, AW205484, AI865594, Z41850, T83574, AI653109, AI469699, F11116, F02863, AI205214, AI933247, AI865456, AI926433, AI586929, AA255832, AW197365, AF095927, and AF117831.
HOCOT88	30	933635	1 - 2215	15 - 2229	AA210814, H09300, AA532934, AA223910, AA084506, Z45274, AA356245, T07284, AA287364, AA702550, R58777, AA096276, H05251, AI708852, AA224030, AA506405, AA210694, AA550736, AA017240, AW293194, AW293197, AA580047, AA287502, AA493521, AA081618, F04960, AA017331, and AI925978.
HELEF11	31	926930	1 - 767	15 - 781	
HOUGD29	32	1204714	1 - 2274	15 - 2288	AW243053, AI674036, AI160750, AA426073, AI299702, AI079952, AA405859, AI805286, AI828341, AW022161, W24408, AI421345, AW206919, AA351454, AW118669, AI263265, AA640181, AW134737, R13311, AW135904, AW008702, AA041245, R40791, T16675, AI418741, AI572229, AA040806, AI057025, N93105, AA954204, AF117948, and AL050031.
HSIGN57	33	910078	1 - 748	15 - 762	AW408450, and AB029015.
HTEPE35	34	948475	1 - 825	15 - 839	AI935040, AA861064, AA933697, AA707583, AA872105, AA398866, AA609626, AA620685, AA435866, AA812556, AA781805, AA993718, AF012362, AI217888, and AA824315.
HUFDB74	35	1227205	1 - 1146	15 - 1160	C05134, AA190389, F13061, AW411339, T75371, AA296815, AA024667, R80747, R25948, AI978930, AW090612, and AC002117.
HBXAB33	36	1229908	1 - 567	15 - 581	I62365, A43194, U13660, AR037041, A79614, A79616, E13190, T49201, T49202, T53481, T53482, T68549, T68624, T74983, R10314, R10315, R06060, R43579, R56437, R56438, R60210, R60444, H09968, H09969, H15371, H15372, H22521, H22522, H29878, H29975, R89835, R89874, H53152, H58314, H58893, H58894, H60856, H60944, H65740, H65741, H70538, H71233, H71234, H77847, H77898, H78398, H80613, H80647, H86014,

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HMABF84	37	1198479	1 - 1856	15 - 1870	AI676022, AI802784, AW451890, AA029526, AI521974, AI927328, T89625, AA968591, AW294436, AA337383, AA917819, AA256057, AA286896, AC002554, and U73628.

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HPTVF17	38	1150836	1 - 1027	15 - 1041	AA224259, T87253, AA968591, U73628, and AC002554.
HSDIC55	39	1197407	1 - 758	15 - 772	I08484, I08485, I08487, and E16758.
HSDIL35	40	1228138	1 - 300	15 - 314	R45895, R28735, R29445, AA585325, AA585098, R29657, T18597, R28892, AA170832, R29218, AA585476, AA585101, D57491, AA283326, D60844, D61185, R28895, R28967, AA585439, C16315, Z32822, D60765, AI557734, D61254, Z28355, AI557262, D53161, AI546875, D59436, D53472, AI557864, AI541356, AI557740, R28965, D59751, AI547250, C15406, D54897, AI546945, AI526140, AI546971, AI541365, AI525500, AI525306, AA585155, AI546999, AI541383, AI541374, AI557763, C16293, C16294, Z32887, D52835, D55233, C15069, AI541205, C16300, AI525431, D53447, C15120, AI526078, AI557727, AI557731, C16292, C15762, AI526184, AI541535, AI547039, Z30131, AI525556, C16305, AI541517, AI541013, AI526194, C15737, AI546996, AI557787, AI546921, AI541307, AI540967, AI525316, AI557807, AI546891, R29179, AI541523, AI547006, R29177, AA585356, AI541346, C16296, AI547202, AI557084, AI526016, AI557408, AI525339, D57186, AI525320, R29262, R29172, AI547196, AI557758, AI541034, D60730, AI526191, AI541527, AI557718, AI557155, AI557602, AI557809, C14208, AI540974, C16290, AA585453, AI526109, AI556967, T19407, AI526113, AI557808, AI541321, AI526073, AI540903, AI526180, AI546829, AI541510, T41289, AI535639, Z33559, AI557279, AI557264, AA174170, AI526195, AI547137, AA585430, AI536138, AI526024, AI526112, AI557039, AI526158, AI535660, D54850, AA514191, AI524890, T41329, AA585117, D51433, AI557799, AI525856, AI557533, AI541422, AI525286, AI541345, AI525332, D59458, C14322, AI540920, AI546828, AI541506, AI546831, AI525656, AI524904, AI547189, C14391, C14723, AI541415, AI541514, AI546954, AI526117, AI526187, AA585434, AI557852, AI541017, AI541027, AI546901, AI557238, AA585440, AI540882, AI541390, AI541515, AI524891, AI557796, AI541508, AI541492, AI557082, AI557285, AI557041, AI526205, AI547026, AI557786, AI540944, D61060, AI557317, AI525114, AI525168, AI547071, AI557810, C14210, AI525076, AI541423,

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HTXSM05	41	1104951	1 - 552	15 - 566	N48523, AA307559, F00168, AA130794, AA215731, AA190411, and AI904194.
HYAAH23	42	1032585	1 - 840	15 - 854	AI086374, AI985881, AW025363, AI744911, AI417334, AI608898, AI760724, AI185630, AI086397, AI419401, AI983536, AA767300, AA657972, AI587185, AA706825, AI189408, AW248699, AI310528, AW073190, AI347314, AI524186, AA563745, AA838407, AI356497, AA495799, AI168297, AA917828, AW130176, AI955019, AI346558, AA232967, AI028668, AW246849, AW169494, T70527, AI140292, AI148985, AI084924, AI333302, AI281328, AA948694, AI678784, AA764739, AI082557, AI276605, AI014882, AI150722, AA253369, AI803268, AI333698, AI831634, AI740611, AI753298, AI082804, AW028800, AA670367, N54782, AI080366, AA777091, AI215157, W49510, AI089710, AI816955, AA148919, AI679052, AA253492, AI087262, T79608, AI197944, AI393800, AI344641, AI933303, AI539484, AA076080, AI290314, AI347377, AI971904, AI183485, AA300208, AI857590, AA677875, AA743340, T68602, AA708333, AA507572, AA749447, AA775359, AA989095, AA705697, AI362504, R83908, W79013, AW069333, W46838, W19200, H57844, N79535, AA495736, AA625770, N90776, AI262439, AA099528, AA865920, AA306173, AA410264, AA865906, W80405, AA234363, AW192370, AA128388, T30208, R83907, AA362705, N75707, AA194982, AA458624, AI221840, AI921358, AA194997, AA887944, AA588355, AA808409, AI264098, AA234413, W49511, N90242, AI127393, AI245717, T16103, AA933878, H63263, AA557707, AA641364, H38215,

					AA256690, AA480658, T34009, AI587030, AA199839, T78631, T81385, AI368525, AA336108, AW131524, AI264469, AI283776, AI468707, H44001, AI269350, AI080399, AI990425, N49510, N75325, AA233135, AA358466, AA846765, AI352057, AI954908, AI422513, AI434527, AA887052, AA406584, F37868, H37992, T79693, W28944, R82477, AI473295, AA552356, H59969, AI864371, AA479548, AA099527, AI695607, AA455531, AI924257, T73246, AA767829, F28542, D25570, AA428810, AA805180, AA091800, AA429337, AI311094, AI241215, T41059, AA346761, AW250705, C20939, AI041628, AA173883, AA248560, AA808574, AL036736, AI460108, AF134895, AF113251, AF146018, AF146689, AL158156, AL158156, AL158155, and AL158155.
HTPDX13	43	1134372	1 - 908	15 - 922	AF017639.
HAHHE43	44	1172244	1 - 2529	15 - 2543	AA442414, AL037261, AW070401, AI457525, AI016211, AI433014, AI240432, C21505, AW382682, AA587446, AA848047, AW074687, N38806, AI285709, AA024410, AI809829, AA551399, AA226173, AC006441, AL117258, AC005015, U91323, L78833, Z98200, AC004531, AC007225, AC002302, AC002420, AC005911, AP000557, AL031685, AC007637, AC005088, AC004883, AC005666, AC007277, AC005488, AL049761, AF001549, AC005089, AC004966, AC005037, AL023807, AF134726, AL031311, AC006064, AL133163, AF111168, AC007676, AL096791, AL008718, Z85987, AC004893, AL050307, Z93017, AD000092, AC004106, AC002563, AC005531, AL109758, AC002425, U91321, AL009172, AC006014, AF196779, Z93241, AC005500, AP000553, AL080243, AC005011, AC004216, U96629, AP000501, AC005086, AL031670, AC005328, AL139054, AC006270, AC005081, AL022237, AC002365, AC004491, AC003982, AL031276, AL031680, AC004033, AC006026, AC005620, AL034549, Z85986, U15422, AC005803, AC005071, AC003663, AC005207, AC004834, AL035461, AF030453, AC005180, AC004813, AF047825, AC007773, AL109984, AL021154, Z84466, AC005102, AC005722, AF109907, AC002115, AC004841, Z99127, AC005736, AC003070, AF030876,

					AC007298, AC005005, AP000194, AC007216, AC008072, AC005484, AC005899, AC005067, AC005104, Z83844, AL109798, AC007686, AC007707, AL024498, AC005409, AC004973, AC006121, AC000026, AC002565, AB003151, AL049779, AL050341, L78810, AC002133, AC005972, AC005049, AC009509, AC003037, AC004938, AC006001, AC007283, AP000692, AF001552, AF050154, AC004678, AC006285, AL034423, AC000353, AF031078, AC005529, AC007371, AL034420, and M89651.
HAJAV28	45	948630	1 - 502	15 - 516	AA305351, N25416, T32745, AA732278, R96887, H12989, R24370, T35889, T34115, F11505, T35841, T30076, T35834, Z42248, T36163, W19619, N42630, T35833, T35871, AA034976, F05477, AA866178, AA322616, AA355325, AA812101, AF190797, and AL121579.
HAPOR59	46	712955	1 - 430	15 - 444	AW407636, AA805331, AA609056, and AC007444.
HBIBF78	47	1123470	1 - 1410	15 - 1424	R67200, T18597, AI525556, AI535660, AI541205, AI525500, AI557533, AI557082, AI541075, AI557258, AI541321, AI541034, AI525856, AR050070, A62298, A82595, and A82593.
HCDAJ15	48	1091635	1 - 622	15 - 636	AA845289, AI587025, AI696467, AL109847, AC004486, U95743, AL023875, AP000966, Z98304, AL031056, AC004087, AP000039, AP000107, AL031407, and AP000280.
HCE1S21	49	671209	1 - 285	15 - 299	AA663839, T64371, AC007666, AC000052, AC004019, AC000052, AC000052, AC000052, AC004019, AC004019, AC004019, AC007666, AC007666, and AC007666.
HCE3J64	50	951228	1 - 676	15 - 690	AA448371, AA448777, AW341249, AB011176, U27341, and AC061705.
HCFCV92	51	1124565	1 - 1130	15 - 1144	AI623716, AI458826, AI280154, AA831121, AI557306, AA687968, AA768629, AI623717, AI500033, and N42105.
HCFLI54	52	921382	1 - 631	15 - 645	AA835065, AI634477, H04996, AI092992, R12577, R12489, T98498, AI807696, AI701147, AI336678, Z39187, R42405, R38979, R42406, AI376737, AA243599, F10155, AA554471, AA758778, AA417699, AI445600, AI004105, AA211467, AA211477, AI363083, AW150977, AA953676, F02234, AA356905, AA193346, AA193464, AI420621, AA910341, AI696583, AA836213, AC005562, AL035658, Z54386, AC023278, AC023278, AC023278, AC005562, and AC005562.

| HCFND04 | 53 | 1155680 | 1 - 1817 | 15 - 1831 | AI091533, AI276640, AI802181, AA385823, AL119399, AL079794, AL042382, AL119457, AL042544, AI613038, AI802542, AI924686, AW103628, AW071417, AL042628, AL040243, AI537677, AA225339, AW088899, AI932794, AI567582, AI610362, AI570807, F27788, AI288285, AW149925, AI824576, AW160916, AI923989, AI499285, AI680498, AI917252, AL121286, AL119511, AI812015, AI345416, AI345612, AI890907, AI932638, AI221035, AI678357, AI345415, AW150457, AI270183, AW268122, AI866770, AI440239, AI929108, AI890223, AI637748, AW129230, AI431909, AI952862, AI358701, AI491852, AI564259, AW079572, AL046942, AI334445, AW020561, AI963846, AI934011, AL042745, AI335426, AI348777, AL041150, AW263823, AI636588, AI874166, AI280732, AI627988, AI184903, AA833760, AI811912, AI554821, AI612913, AW168485, AI560184, AI956080, AW073697, AI623682, AW268302, AI620089, AW072719, AI281867, AL048871, AL038445, AI500588, AW020164, AI802240, AI500061, AI670009, AI927755, AW087938, AI633125, AI207572, AI284484, AW083750, AL039086, AI475371, AI473799, AI254731, AI624084, AL079963, AI969655, AI241923, AI468872, AW084219, AW151847, AI798456, AI473536, AL048323, AI698391, AL037582, AL037602, AL039276, AL048340, AI274745, AA427700, AI591407, AI950892, AL045266, AI673363, AI537261, AI916419, AI554344, AI537617, AL036638, AI862135, AL110306, AI349967, AI758437, AL043326, AI648502, AI280661, AL036541, AW302954, AL036548, AW079336, AI826225, AI638798, AI811785, AW151136, Z99428, AI865906, AW105431, AW162189, AI345477, C16221, AI879064, AW262565, AA806720, AI689420, AI491775, AI440263, AL079740, AI580436, AI612759, AW161156, AW083573, AI571439, R81679, AW162194, AW079075, AW089310, AI497733, AW079409, AI922315, AI307557, AI635016, AI611738, AI619502, AI677796, AI306613, AI886181, |

					AI433976, AI352497, AW150762, AI922901, AI889133, AW301513, AW029611, AL045997, AI365256, AW026882, AI873604, AI559296, AI539771, AW265004, AL079741, AI567351, AW163834, AW198090, AI633419, AW167918, AI569616, AI433157, AW089258, AI702073, AI269862, AI648509, AA640779, AA287231, AW150225, AL119863, AI340603, AI921746, AI344928, AI758512, AI249877, AI699865, AI863382, AA572758, AI686817, AA641818, AI702019, AI866162, AI860694, AI651840, AI679990, AI251221, AI915291, AI587606, AW152182, AI285586, AW073677, AI270706, AI955866, AI520809, AI829327, AI270429, AI687295, AW118518, AI539847, AW148356, AI470651, AW059713, AW129106, AI310575, AI610645, AW167222, AI950664, AI538829, AI568138, AI815855, AW105601, AI340533, AI452993, AI334450, AI571909, AC007068, Y11587, AL122098, AF026816, AF158248, AF118094, AF113690, I89947, AF118070, A77033, A77035, AL117460, AL133075, AL122110, I33392, AL137550, Z72491, I48978, Z82022, AL117585, AL117457, A03736, AL110221, Y16645, AL049283, Y11254, AR011880, A08913, AF057300, AF057299, AL050116, A08916, AL133080, AF113677, AR059958, AL117435, A65341, AL050172, S68736, AL133014, AL110196, AL050277, A08910, I89931, A08909, AL049382, AL137271, AF090903, AL133016, AL137533, I49625, AF067728, AL050024, AF111851, L31396, AL096744, L31397, AL122050, E02349, AF078844, AF091084, X82434, I48979, U80742, A08912, AF106862, AF113694, AL137557, AF125948, X72889, I66342, AL137463, AL137476, AR038969, AL133104, E04233, AF087943, AJ242859, AF017152, AF090900, AF061943, AL133067, AF017437, AL049452, AL049314, AF185576, AL122093, AJ012755, AF104032, AB019565, I26207, AR038854, AJ000937, AL137459, AL050108, U78525, AL110280, S61953, AF090934, AL080159, AL137560, AF090901, AF081197, X98834, AL049466, E03348, AF113689, AF177401, S78214, X84990, I00734, AR000496, U39656, X70685, AL137538, AF113013, E00617, E00717, E00778, AF090896, U72620, AL050393, X93495, E02221,

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HCHMV63	54	1190101	1 - 1439	15 - 1453	AA528091, AI937130, AL043928, AA512928, AI003767, AI950845, AI681293, AW020408, AI126197, AW189101, AA421192, N56993, AI081289, AI498013, AA278851, W76552, AA285337, AI568488, W74357, AA609588, AI634849, AA417379, AI272841, AI082525, H72715, AA862669, AA370112, F37679, R48578, AA508735, R18652, AA993015, R09304, T73701, AI383524, AW193459, AW027819, AA508168, AA298483, AA428290, AI608919, AI916400, AA360685, AI001776, AW189612, R09199, AI371477, R48679, H97957, AA706851, AA766418, AI222565, AA565335, AA548319, AA428723, N73552, T73726, R73134, R73194, AA298688, AI349777, AI266766, AI251698, AL119324, AL119457, AW274324, Z99396, AI254621, AL042544, AL119399, AW392670, AL134524, AL119484, AL036418, AL038837, AL037051, AL036725, AW268781,

					AA631969, AL119439, AL039074, AL119443, AW363220, AW372827, AL036924, AL036858, AL038509, AL119391, AW384394, AL039564, AL039085, AL134519, AL119319, AL134530, AL039156, AL039108, AL039109, AL119522, AL039128, U46347, AL119497, U46350, AL037094, AL039659, AL036190, AL119363, AL036196, AL037639, AL119483, AL119418, U46351, AL119355, AL119396, AL038531, AL037526, AL036767, AL037082, U46349, U46341, AL119341, AL119335, AL119444, AL039625, AL039648, AL036238, AL045337, AL119496, AL042909, AL037205, AL039386, AL039678, AL039629, AL038520, AL037085, AL043003, AL036268, AL038447, AL134528, AL039423, AL039150, AL042614, AL037077, AL119401, U46346, AL040992, AL038851, AL134518, AL134525, AL119464, AL036998, AL036733, AL037615, AL042984, AL042965, AL042975, U46345, AI142137, AL134538, AL043019, AL037027, AL042542, AL037178, AI142132, AL039410, AL042551, AR060234, AR066494, A81671, AR023813, AR064707, AR069079, AB026436, AR043113, and AR054110.
HCWDL45	55	889416	1 - 397	15 - 411	Z98747, AC023100, and Z98747.
HCWEI19	56	1125258	1 - 434	15 - 448	AI657485, C14723, C14322, C14391, N83963, AA092643, N86592, AI547071, AI541508, D81306, R29179, N83707, C14208, D53472, C16305, AI526073, D51446, T41289, AI547202, AI557734, AI541523, AI526184, AI540920, AI526117, AI541390, AI526180, AI541415, AI556967, AA585453, AI557072, AI541017, AI525076, AJ243486, AR018815, AF045432, U39066, U48697, U48696, X99056, X99052, Y16299, X99058, X99051, AF102850, AF001863, AF061744, X99055, X81969, AF011573, AR062872, AR062873, A98420, A98423, A98432, A98436, A98417, and A98427.
HCWKB72	57	1224131	1 - 3194	15 - 3208	AA310583, AI075167, AA828260, AA315219, AA309994, AI141283, AA020899, AA725020, AW367821, AI052660, AW445176, AA188038, AA311591, AA378802, AA191133, N22658, AA193339, AA359023, AA333402, AL044687, AI343256, AI805548, AI805364, AI632447, R99546, AW205256, AA355616, AI140558, AA506758, AW235758, R97777,

					AI003232, AA055722, T83778, AA356235, AW364666, H71744, H56686, T46899, T97934, AA504685, AF048977, and AF062655.
HDDAF49	58	1125713	1 - 906	15 - 920	AL133047.
HDPGQ74	59	691163	1 - 308	15 - 322	AA077608, and AC073462.
HDPGS68	60	752975	1 - 448	15 - 462	AC034180.
HDPIX67	61	1172240	1 - 2934	15 - 2948	AF147773, AF152898, AI708697, N51342, AA825888, AI292226, AI288960, N39421, AA975060, AI261689, AW291891, N48537, AI695627, AA406030, AI699867, AA406029, H26638, AL046205, AA669840, AL046409, AI284640, AW274346, AA508359, AW069510, AW303196, AI963720, AI431303, AW301350, AA490183, AI270117, AW079792, AI583283, AW193265, AW274349, AI799642, AA468244, AI370878, AI654525, AA584195, AA806796, AA846876, AL138455, AI434695, AA587604, AI972203, AW338086, AA613203, AL134972, AI537955, AA491814, AW438643, AW276827, AW265385, AA580808, AA577906, AI350211, AA503600, AI821271, AA584167, AL037683, AA623002, AI370074, AA618452, AW273218, AI375710, AA503473, AI382614, AI613280, AI754955, AI801591, AI499938, AW021583, AA467820, AA977743, F17891, AI471481, AI053672, AA713891, AI061143, AW073470, AA664581, AI732120, AI688846, AI610159, AL121235, AA720702, AW022379, AA453558, AI744995, AA653618, AW072587, AI281881, AA613227, AI919029, AI312309, AA569387, AA551503, AW440497, AW075511, AA599920, AW193432, AA847952, AA502155, AI860013, AI708125, AA488746, AA613232, AA594145, AI564185, AL119984, AA679672, AW162049, AI370094, AI633025, AI929531, AA908468, AI339850, AI434311, AW103758, AW050498, AI687260, AL040921, AA664015, AW327868, AI368745, AI457397, AI754658, AA521323, AI379719, AA507824, AI423625, AI341664, AA351056, AI281468, AL119691, AI345654, AI192631, AI366464, H51714, AA525824, AA713815, W79504, AA468131, AI061334, AI085719, AA601499, AA367986, AI619997, AA177061, AW079135, AA478355, AI133164, AL042753, AA335134, AI962050, AA984708, AI301700, AL044940,

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HDPXN01	62	1125610	1 - 495	15 - 509	AI651231, AW196757, AA101088, AI627422, W94251, W94274, AA912880, AI093809, AI867562, H06521, H20526, AW151979, AI590043, AI554821, AW151136, AI539771, AI537677, AI494201, AI500659, AI828574, AI866465, AI815232, AI801325, AI500523, AI538850, AI887775, AI582932, AI872423, AI284517, AI923989, AI500706, AI491776, AI445237, AW151138, AI521560, AI889189, AI500662, AI539800, AW172723, AI284509, AI538885, AI889168, AI440263, AI866573, AI633493, AI434256, AI866469, AI434242, AI805769, AI888661, AI500714, AI284513, AI888118, AI859991, AI436429, AI648567, AI355779, AI889147, AI581033,

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HDQFT77	63	1136137	1 - 1414	15 - 1428	AI582617, AW194919, AI393304, AI760916, AI378837, AI628122, AI525818, AA861720, AI682246, AA775482, AI651311, AA025281, AI857832, AI340350, AI348117, AI338259, AI015680, AI242142, AI860137, AA476668, AI200562,

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HE2FR50	64	508498	1 - 379	15 - 393	AA329700, AI808413, AI961240, AI718802, AA827821, AI572903, AI379116, AW262991, AA446001, AA150385, AI141317, AF129534, and AC010408.
HE2SN25	65	1151226	1 - 1306	15 - 1320	AW327262, AW327616, AI016714, AI769182, AA725234, AI051725, N62194, AA483400, AA483411, AI554330, AA847865, M85521, N66755, AA933624, AI825794, AA902896, R60056, AA594900, H05474, T16298, AA977118, AI671131, AA054722, AA650410, R43427, AA761969, AA716570, AA916000, T34734, AA054669, T90105, AA805766, AA342241, AA811545, and T82929.
HE8AE26	66	1147168	1 - 1108	15 - 1122	AA331521, AA331463, AC005071, AF030453, AC002551, AC004084, AC004878, AC006480, AC006014, AC005088, AC004447, and AC005488.
HEBGK01	67	963673	1 - 730	15 - 744	AI937365, AI392899, AI738487, AI762089, AW005988, AI273612, AI199565, AA310331, AI674232, AI423302, AI373573, AI498277, AI805937, AI479717, AI423099, AI479444, AW172357, AA843385, AI263152, AI015112, AW001280, AA232568, AI015123, AI492142, AI969880, AA158791, AI865576, AI363811, AI937401, C21054, R68197, AA335730, AI758134, AI825116, AI928600, M91490, AA045131,

					AW004003, AA158790, AI869102, R55863, AI611805, AA045102, AI954265, AI628404, AI826556, AI659813, AI695937, AI967979, AI589904, AI937547, Z97653, Z97653, Z97653, and Z97653.
HEFMB30	68	691516	1 - 403	15 - 417	AI813271, AI459195, AI796347, T71268, AA702812, AC012481, AC012481, AC016659, and AC016659.
HEOPE58	69	851009	1 - 463	15 - 477	AL078634, AP000117, AP000194, AP000313, AP000050, AL078634, AL078634, and AL078634.
HETBR74	70	948667	1 - 863	15 - 877	AI424957, AA865175, AI345105, AW337653, AI493383, AA992117, W86236, AW001913, T23935, AI141791, AI277560, T33653, T91218, AA469060, AA148613, AI635951, AI500569, T72018, AI290957, AA159337, T32385, AI088662, AI140973, AA534837, F10818, AI703234, AA486780, AI935264, AA999981, T94771, H50506, AA774208, T98781, H51340, H43580, N57875, AI696236, H44933, N64109, N40952, and AL137633.
HFCAG94	71	1111177	1 - 997	15 - 1011	AA338681, AI457313, AI634187, AW069227, AI978782, AL079734, AA021561, AW117704, AW083102, AW117723, AI432298, AI431513, AI889579, AA176605, AI004591, AI653776, AA629412, F24745, AA219349, AA056250, H29914, AI469599, AW082104, AI912401, AI206841, AI962030, F35684, AA583386, AA130647, AI189682, AW002831, AW272774, AI355246, AW302017, AW130591, AI280266, AI491765, H53284, AA773463, R93919, T47138, AI583291, AI434037, AA493110, AA452887, AI360514, F30158, AI915081, AA568314, AI792575, AA315361, AI054398, AA297195, AA879053, AA338680, AA846923, AI908093, AW081485, AI271762, AA581247, AA572983, AI151081, AI096421, AW403829, AI160786, AW089950, AA600202, AA148656, AA984857, AC008064, AP000117, AF045555, AL033381, AC005821, AC005200, AC005102, AC006160, AC004913, AC004985, AC006065, AF111168, I34294, AC004796, AC005409, U95739, AL080243, AC003663, AC004966, AL035071, AC006487, AL035417, AC003692, AL121603, AL133445, AC005043, AC002316, AC004815, AC002310, AC002115, AC005696, AC005049, AC005071, AC007664, AC000029, AC002472, AC005058, AL079342, AL034555, AP000299, AL109628, AL109758,

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HFPHR82	72	957528	1 - 1579	15 - 1593	AA913364, AW027373, AW305275, AI799031, AW117480, AA588138, AA775450, AW190848, AA411334, AA866178, W61038, AA411335, AA775769, AA769134, AA075643, N30274, AI493881, AA627544, AI147666, AA075644, AA614747, N30309, AA812101, AI025647, AW339918, AI140386, N94919, AI138196, AA868924, AI143201, AA284960, AI347094, AI343592, AI128292, AI017993, AI492556, N41996, N20511, N42630, AI933338, AI554835, W72001, W69402, AI679099, AA040263, T32745, AA872581, N29505, AI268560, AI354734, F28362, AI017992, AA719956, AA448442, AI679673, AA863176, AA444022, AI142803, AA732322, AA993672, AI624135, AI304774, W44314, W37097, AI475118, AI004213, W65308, AA846235, AA448307, AW274816, N25416, AI285067, D79265, W44778, AA305351, AA682603, AA285117, AI186604, AI149185, AI339799, AI872626, AA557809, AA444000, AI344717, AI128110, AA922743, AA996037, N56641, H13966, AA515842, F37123, AA732278, W65338, W76570, AA989130, AI239957, R21057, AA721150, AI580506, R96887, N26843, AA034909, W45686, F09166, H12989, W19542, W69363, N57447, R96888, C04314, AW183468, H87003, AI719584, AI685763, R24370, T35889, AA081676, T34115, N40568, AA010732, AW089136, AW023063, N63592, T35834, AA913531, Z42311, F11505, H05630, AA505347, T35841, T30076, AI366940, T30517, H27007, Z42248, F09167, H87002, AA721261, W56871, T36163, AA040400, W19619, R46237, AA863208, AA649338, F34780, T35871, H13965, AA913094, T35833, AA034976, AI274646, AA890331, N63619, AA082031, F05477, AA603299, AA322616, AA603386, R27044, Z38484, AI564372, F01840, R27043, R27029, AI859366, R27028, AA748381, F01739, AA355325, H53598, AI859362, N46608, AA339209, and AF190797.
HHFOO84	73	857780	1 - 368	15 - 382	
HISAM68	74	1125189	1 - 598	15 - 612	AI733671, AI439165, AI479274,

					AI913259, AI831958, AI739264, AI017843, AW052131, AI831355, AA282596, AI793216, AI793039, AI261362, AI792395, AL119522, Z99396, AW392670, AW372827, AW384394, AL119497, AW363220, U46341, AL119396, AL119341, U46349, AL119319, AL119443, AL119457, U46350, AL119324, AL119483, U46351, AL119484, AL119363, AL119391, AL119355, AL119496, AI142139, AL134902, AL134533, AL134920, AL134524, AL119335, AL042896, AL119418, AL119401, AI142137, U46347, AL119444, U46346, AL042975, AL042965, AL134531, AL134526, AL119399, AL037205, AI142132, AL134538, AL042614, AL036418, AL038837, AL042970, U46345, AA631969, AL042450, AL119488, AL036858, AL036924, AL037094, AL042551, AL036196, AL036767, AL037526, AL036268, AL037082, A81671, AR060234, AR066494, AR069079, AB026436, AR054110, AR023813, and AR064707.
HLHDD45	75	942901	1 - 425	15 - 439	AA359864, AW139566, AI129355, AA131594, AI174990, AI288447, AI202581, AA705625, AW391207, AW302196, AW351439, AA094441, AA311362, AI064968, AA373955, R98996, W07340, W21920, AC024148, AC044892, AC044892, AC069253, and AC069253.
HMMAB49	76	1087684	1 - 669	15 - 683	D29160, AW151102, AW272794, AI720141, AI934307, AI291124, AI028510, AW157005, AW270619, AA992126, AI061334, AA558404, AI049701, AI570943, AA262752, AA779783, AW104748, AI365988, C14121, AA176605, AI352078, AW193432, AA501614, AA655013, AW406755, AA955031, AI374809, AI688846, N25303, F29989, AI521679, AI935827, AA347927, AI358229, AA720746, AI291268, AI613459, AI270476, AW193265, AW023672, AI284640, T29180, AW167154, AI580707, AA347930, AI431303, AI628288, AI206785, AW028376, AI281881, AI267356, AI623563, AI471481, AA469451, AI350211, AA206629, AI783911, R87193, AW118529, AI345695, AW192199, AA084070, R79396, AA639025, T47739, F25867, AI267450, AA515224, AA837740, AA278496, H62778, AA177061, AI192631, AW193609, AI336054, AI312790, AW407220, AI358501, AW270258,

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HMSGO27	77	683031	1 - 443	15 - 457	AI499503, AI709066, AI754955, AL042853, AI963720, AI334443, AL042753, AW408717, AW193265, AL119691, AL046409, AI345518, AL037683, AI281881, AI284640, AW303196, AW406755, AI613280, AW088718, AW439558, AL138455, AW301350, AW340844, AL138265, AI345654, AI254615, AI350211, AI133164, AA720702, AI696793, AA503015, AI799642, AL048925, AI568678, AW270270, AL046205, F36273, AW410400, AL041690, AA587604, AA623002, AW274349, AW021583, AI561060, AW407578, AA630362, AI457397, AI355206, AI610159, AI110770, AA491814, AW073470, AI305547, AA507824, AA581903, AW265385, AA610491, AW304584, AI270117, AI249997, AW103509, AI431303, AA468022, AW238278, AL042420, AW028429, AA661948, AI754658, AW072923, AI370074, AW419262, AI345681, AI345675, N27584, AW245747, AA723017, AI708009, AA877817, AI559251, AA610783, AA493471, AI783494, AW020992, AA834667, AI365988, AI537506, AW129001, AA610493, AW276827, R88888, AL048626, AL120687, AA649642, AA569471, AW302013, AA526787, AI370094, T53128, AA828704, R24205, AI633390, F29989, AL046898, AA533725, AI358571, AA490183, AA491284, AA857486, AA551503, AA126035, H90814, AA680243, AW070892, AI623720, AI888518, AL121039, AA525790, AA126051, AA525824, AW167372, AI702049, AW404653, AW438643, AA521399, AA521323, AW327868, AW162288,

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HNHAM52	78	1125710	1 - 866	15 - 880	AI580306, AA211410, N40468, N48507, D81030, D51799, D80212, C14389, D80164, D80166, D59619, D80210, D80240, D59859, AA305409, D80219, D59927, D51423, D80253, D80022, D58283, D80195, D59502, D80188, D80391, C14331, D59787, D59467, D59275, D80043, D80227, D57483, D59610, D80248, D80366, AA514188,

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HNHEQ86	79	785580	1 - 117	15 - 131	AC024653.
HNHHF46	80	1123883	1 - 1379	15 - 1393	AW137103, AW302615, AA913635, AI765662, T91047, AI525136, AA393986, AI056765, T83834, N59019, AA913173, N53925, AA700668, R08314, R08368, AI580501, AI018028, AW081040, T93861, T83670, AI307635, AW300106, AW300120, AA398023, D88547, and AC008989.
HOECV83	81	1123893	1 - 2304	15 - 2318	AF052496, W07603, D20016, AI140321, AI270499, AA814586, AI753510, AI199086, AI862658, AI810183, AI367789, AI910862, N51917, Z44988, AA876403, AA969919, T16520, F03901, N80870, Z40725, AA174190, N56197, D59695, D52291, D80949, D51079, AI557751, D51213, D80168, D59627, C14298, C14407, D80228, AW352172, C14227, D58246, D80064, D81026, D45273, T03048, D59503, T11417, D81111, D80258, D80022, C14014, AW178777, D58283, C16955, D80014, D80391, AI535686, D80043, D59787, C14077, D80164, D80196, D59859, AA305409, D80212, D80045, D80133, AA514186, D80247, Z21582, Z33452, D51231, C06015, H67866, T02974, H67858, AA514184, Z30160, AL050087, AR016808, X64588, A62298, Z82022, A62300, A82595, and AW474026.
HORBO54	82	870674	1 - 566	15 - 580	AW166235.
HOSFZ73	83	1122896	1 - 619	15 - 633	N57282, AA725075, AI703492, AA100379, W26914, AI540952, AI879394, AI653605, AI696372, AI678785, AI634691, AA086150, AW157492, AI270524, AA160171, AA160172, N67343, AC004020, AW467393, and AW612137.
HPIAU71	84	1123830	1 - 762	15 - 776	
HRDBT72	85	1112136	1 - 846	15 - 860	AI696962, AW271904, AW088846, AA680243, AL042756, AA610491, AW237905, AA651639, AI431303, AI867058, AL040054, AI369580, AI754253, AI732120, AL046409, AW069769, AA469327, AW069227,

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| | | | | | AC005620, AC002477, I51997, AF107257, AF015147, U78027, AC007298, AC008044, AL049646, Z85987, AC005224, Z85986, AL034429, AL049780, AC005625, AL035422, AC005399, AL121603, AP000008, AC007227, AC005664, AC004882, AL022328, Z97653, AL034417, AF196779, AL121658, AC007842, AC005939, AC000075, AC005722, AC004150, AD000092, AP000211, AP000133, AP000091, AL133353, U95739, AC018633, AC005971, AP000140, AC005943, AL035413, AL121653, AC004417, AL035697, AC006262, Z69714, Z97181, AC006547, AC008115, AL121655, AP000236, AC004087, M30688, AL133448, AC007030, AL049793, Z93241, AC005696, AC004858, AC002073, AC005330, AP000472, AC006001, AL050318, AC002365, AC003006, AC005755, AL035249, AC007052, AF134726, AC005225, Z84480, AP000356, AC006088, AL024507, AF053356, U85195, AC004066, AC005529, AC004975, AC005874, AC004841, AF134471, AC005954, AL022329, AP000088, AC004836, AC006162, AE000658, AC007637, AC004815, AF038633, AC000111, AC005215, AL008718, AL008726, Z68276, AC005049, AL009029, AC007685, AC005694, X54486, AC005746, AL078584, AC005839, AL109628, AL049761, AC004894, Z80232, AL031681, AL030996, AC003086, AC000353, Z98941, AP000251, AC007736, AF117829, AC004686, AC005601, AC006946, AC006487, AL109627, AC000025, AC007243, AL022398, AC006285, AB023050, AC004895, AC004972, AL031003, AP000030, AC006953, AL031447, AC003041, AC006958, AC002301, AC007421, AP000243, AP000203, AP000114, AC007536, AF001549, AC005914, AC005358, Y18000, AC006600, AL022322, AC015853, AC006299, Z75888, AC004622, AC008122, AC004673, AL035461, AC006441, Z95115, AC005200, AL049874, AC006480, AC004859, Z99496, AL139054, AL133246, AL035072, AC003072, AC007066, AL031732, AP000511, and AL035588. |
| HSDFT51 | 86 | 1124582 | 1 - 1355 | 15 - 1369 | AI422221, AW269213, T11456, H84186, AI142300, AI348147, AA705920, AI657002, AW028877, AA928672, AI587025, W03281, AI765590, AI954911, |

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HSDJM56	87	948669	1 - 799	15 - 813	D57175.
HSICX21	88	531267	1 - 364	15 - 378	AC016333, AC016333, AC024101, and AC024101.
HSIDS82	89	531248	1 - 288	15 - 302	AW296375.
HSNAH21	90	571314	1 - 237	15 - 251	AI074638, AA156897, AA405746, AI288884, AI142828, AI434997, AA464691, AI079347, AI141600, AA558999, AI417262, AA524307, AA729535, AA492487, AW453078, AA436613, AA746965, AA923317, AI142582, AA424901, AA156817, AI339241, AI042516, AI097311, AI924831, AI435356, AI743842, AW023128, AA424767, AI751251, R45895, AA585325, T18597, Z28355, D53161, Z32822, AA585098, R29657, AI557807, C15406, D61185, AA585101, Z32887, D57491, D51433, D59751, C15069, R28892, D54897, R28735, R29445, AI557740, Z33559, R28965, AA170832, AI525316, AI557262, AA585378, D60765, AI557864, AI541356, D60844, AI546831, D59458, AI547250, D54850, AI557718, R29218, AI526078, AA585155, AI526140, AI541365, AI525500, D59436, AA585439, AI557727, AI541517, D55233, R28895, AA585329, AA585430, C16294, C16315, AI546971, AA283326, AI541383, AI535639, AI535660, AI541013, AI546999, AI546875, AI557731, Z36724, AI526112, AI541535, AI547039, AI557763, AI526184, AI541205, AI526016, D61254, AI557734, AI541423, D53447, AI525556, AI525114, C16292, C15120, C15762, D52835, R28967, AI557809, D53472, AI526158, AI526191, C16300, AI546921, AA585476, C16296, AI525339, AI526024, AI557852, C16293, AI525306, AI540903, AI526117, C16305, C15737, AI541374, AI541034, AI557084, AI557758,

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HSODC08	91	966264	1 - 1432	15 - 1446	AW007193, N64811, AA452032, AW339062, AW340188, AA401432, AI568619, AW169936, AI680519, AI271472, AA131132, AA400000, AA885882, AI338757, H94846, AA749092, AA406402, AA771971, AI250802, AI499729, W95739, AA975465, AI147856, AI521267, W95717, AA284462, AA902995, AI969258, AI143369, AA668710, AA772776, AA410424, AI278748, AA465528, AI094421, AI280111, AI031849, AI022538, H94904, AA448926, AA932880, AA939066, N50516, AI026050, AA888455, W46552, N50572, AA448961, AA908448, AA970161, AW304057, N63986, AW004817, AA383538, AW192281, AI185874, AA131080, AI376899, AW391424, AA812994, AA383509, T89723, R11866, AI139250, T77066,

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HSPAB58	92	736098	1 - 347	15 - 361	AI718112, AA702244, and H64345.
HSQCM85	93	963554	1 - 453	15 - 467	AL021918, and AL021918.
HTOIA82	94	844319	1 - 401	15 - 415	H04212, AC012446, and AC012446.
HUUDH57	95	931155	1 - 2177	15 - 2191	AI888110, AI248937, AI084822, AI249135, AA361076, AA356078, AW296215, AA897402, AI161293, AI889765, R22164, and AC009073.
HWACV74	96	1145916	1 - 1718	15 - 1732	AI762815, AI702097, AI637581, AW025622, AA814968, AI004348, AW193426, AI635627, AW081066, AI569925, AW276794, AI933804, AI864500, AA483606, AA570740, AA568204, AA879053, AA676592, T50676, F09355, AI133514, AI054397, AC007011, AC004962, AL008719, AP000128, AP000206, AL049869, AC007637, AF003626, AP000245, AL135783, AP000036, AC005094, AC005874, AF134471, AF031078, AF030876, AL031228, AC004686, AC002352, AL096703, AC008154, Z95889, AC003037, AC005377, AC007298, AL009181, AC006390, AC004797, AC004470, AC003663, AL022098, AL031577, AL139054, AC007021, AL034417, AC004912, AC006952, AC002530, AC004664, AL049611, Z68164, AC004890, AC005915, AF015262, AC007563, AC000393, AJ229043, AL031733, AC007263, AC005291, AL049553, M37468, AC005900, AC005013, AC005244, AL031584, AL078638, AC005184, Z93244, AJ229042, AC004383, AF064858, AC005531, AL035420, AC003074, Z93020, AC004963, AC002465, AC006123, AC004778, AL049839, AC005081, AC007392,

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HWAFW39	97	947915	1 - 518	15 - 532	T27535, AF106037, AF222340, AB011097, AF183569, AC008955, AC008955, AC008963, AC008963, AC008508, AC009073, and AC009073.
HWBBR65	98	1156447	1 - 2238	15 - 2252	AI110760, AL040921, AL048969, AL044339, AL044340, AI608771, AW188427, AW102811, AL037632, AI054414, AW157180, AL138265, AI952885, AI302688, AL048626, AL044489, AW080062, AA223932, AA126635, AL042906, AI791227, AL119331, AI076616, AL042905, AW408643, AI354847, AW243793, AL135377, AI679294, AA134961, AI679871, AA601278, AI732911, AW069819, AI694178, AA487475, AI457389, AI907046, H57596, AI961264, AA736713, AL041013, AI871691, AI816537, AA287618, AA020873, AL138065, AL137984, AA456937, AI917156, AL079869, AL120343, AW405593, AW008089, U51704, AI141202, AL120483, AA084401, AA634991, AA081138, AW401509, AI457152, N76766, AA601503, H77505, AA580560, AA017377, AA831913, AW372037, AI445582, AA527963, AL041895, AA618412, AL038705, AI016192, AA608588, AI583978, N23097, AA706495, AA284247, W96277, AA575852, AA601230, AA584482, AL134338, AI580906, AA586907, AA608612, AA838140, AI581006, AA640277, AI798521, AA297145, AL120269, AW169057, AA984258, AI143051, AA568303, AI801141, AA834799, AI820992, AI734144, AA224525, AA489856, AI433104, AI732128, AI732635, AA568314, N23913, AI913324, AL118925, AI612111, AA613164, AA908687, AI016704, AL043095, AL046746, AL134216, AA130647, H57595, F28204, AA908857, N27362, AI823679, AA862035, AI862802,

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HWMES65	99	969190	1 - 582	15 - 596	AC006237.
HISBG28	100	920850	1 - 901	15 - 915	AA481627, AA883142, AA811592, H65033, AA909711, AI810118, H65034, AW104339, AI016329, U67932, L12052, I22485, U77880, and U68171.
HAJAE60	101	786337	1 - 365	15 - 379	AL046909, AI752624, AA312812, AL047364, M62227, Z21666, T34603, H55171, AA594044, H15984, F08310, AW294651, R57156, T30933, AL008582, U80040, J05224, AF086788, U87928, AF093082, AL023553, and U87926.
HDPDE32	102	1217181	1 - 878	15 - 892	AB026436.
HBDAC79	103	1199232	1 - 582	15 - 596	H23157, AA663798, AA904376, R61429, AA309011, H09004, AA359944, AA448036, and AF126245.
HEMDX48	104	1163778	1 - 2478	15 - 2492	AI810732, AW250381, AW377072, AW377038, AW102948, AI743705, AI991624, AW340866, AI992143, AW439506, AW376973, AA837407, AI066780, AW376941, AW406374, AI624965, AW058422, AI829487, AI184239, AI799640, AI688748, AI127916, AI624945, AA024661, AA579821, AA459167, AI142745, AA836422, AW129372, W70231, AI308802, AA024967, W45358, AI476746, W70232, AW247811, AA649867, F34967, N75289, AI024615, W40274, T23428, AI936808, AI051115, AW352180, AA458956, AW250977, T17318, AA380312, AA593573, AA745075, R49997, AA635874, D81688, AA887790, AA569149, T49848, AI940351, AA176301, AA780919, AA904356, AA362924, W39366, AI961822, R50335, AI909817,

					AI187031, AW194509, AI289747, AI434567, AI493559, AI537943, AI358581, AW197139, AI275175, AI832504, AI631285, AI671642, AA845921, AA888192, AF078854, and AW511551.
HHASB48	105	721150	1 - 637	15 - 651	AW250381, W40274, AW247811, and AA380312.
HLWCA17	106	1104762	1 - 1267	15 - 1281	AA045807, AA045901, N53982, R20987, AI378617, AA807086, AI379690, H87566, W58038, W30784, AW392670, AL119457, AL119324, AL119355, AL119319, U46351, AL134531, AL119341, AL043019, AL119484, AL119391, U46350, U46347, AL134536, AW372827, Z99396, AW384394, AW363220, U46349, U46341, AL119497, AL119522, AL119418, AL119363, AL119401, AL037205, AL119443, AL119439, AL119444, AL119483, AL134902, AI142131, AL134527, AL134525, AL119396, U46346, AL119335, AL134920, AL042544, AL119399, AI142139, AL119496, AL134538, AL042433, U46345, AL043008, AL042984, AL042542, AL042614, AL119464, AL042975, AL042450, AL042965, AL043029, AL043003, AL042551, AB026436, AR066494, AR054110, AR060234, A81671, and AR069079.
HNTTD09	107	1104487	1 - 926	15 - 940	D78809, AA377051, AA045359, N53982, AA045901, AA258499, and AA258335.
HSKDT07	108	927823	1 - 1104	15 - 1118	AW377072, AW377038, AW376973, AW406374, AA024967, AA459167, AI940351, AA362924, AW352180, AW376941, R49997, AI961822, AI909817, W70231, AI066780, AI810732, AI127916, D81688, and AF078854.
HSRDB26	109	1102231	1 - 645	15 - 659	
HAPBS07	110	967325	1 - 742	15 - 756	AA284453, AA481096, AA465418, W17165, AW405741, AW404541, AA304808, AR028677, AF067174, and AC007556.
HAUAI17	111	921674	1 - 1010	15 - 1024	AI742586, AI823636, AI738645, AI570505, AA994212, AW166260, AI472051, AI689840, AI819324, AI802140, AI808204, AI018575, AI708063, AA044874, N33369, AI458889, AI798664, AI694439, AI742084, AA996109, AI268684, AI051014, AI005161, AI126407, AW295897, AI625938, AW418896, AA044826, AI564776, AA983545, H92520, AI379936, AI373261, AA317357, AW139306, AI521441, AI264270, AI498702, AI244808, AI948596, H77889, AW135452, AI021975, AI985535, AW242712, R00296,

					AA677354, N35293, AA938619, AI948603, H58937, AA917514, AI393979, AA779970, AI768427, AW044210, W25595, T99948, AA883635, AW072204, AI470848, AW351592, AW020604, H92521, AI955919, AI208112, AI919367, H58984, AA335622, AI308950, AF126781, and AI085468.
HBCBT19	112	959953	1 - 758	15 - 772	W58728, AW194384, AI921843, AA131986, W27452, AA861776, AW025219, AA366467, AA969204, AI077983, AI688167, AA805925, AI939498, T82046, AA026664, AI627470, R71811, AW316534, AI189664, R60094, AA007217, R53357, AA335794, AI401269, AI024367, AA131681, AA505874, AI200318, R71771, W24578, AA026712, AI676036, AA806045, AI299373, AI890667, AW118903, H29874, N92383, H92161, AI267768, AW075217, AA918168, AI885357, AW372475, AW172330, AA844743, AI149118, AI453474, AI357518, and AI262961.
HBCPT10	113	957631	1 - 1278	15 - 1292	AI131178, AI073401, AI087304, AW001150, AI870504, AA632131, AA527353, AI268314, AI199367, AI279189, AW419191, AA293161, AA639837, AI859436, AA777588, AI936230, AW071823, AA809698, AA528107, W72175, AA719229, AA809330, AI333884, AI138637, AI202785, N33080, AI299098, AA527330, AI826773, AI026030, AI291245, AA782731, AA932449, W51877, AA429946, AA931756, W76461, AA135492, AA714047, AA977092, AA293652, AW245862, AA890559, AA306873, AA564285, AI041789, R88664, AI419007, AA088221, AI537756, AA255746, AI038212, AA262033, AI147591, AA991254, AI582859, AA988303, H41229, AW068962, N44651, H43006, AI312065, AA634846, T15928, H44946, AA305881, R89745, AA738454, H45675, AI086798, AA740304, AI092660, N31513, AI183882, T23541, H38430, AA158212, AA010261, AA088641, AI608659, AI673592, AI824292, AW245604, AA758471, R30908, AI183678, AA293757, AI023829, AI202407, AI718345, AA860798, AA953640, AI635433, R96843, AA505675, R25850, H66091, H45715, AI382577, H44992, AA988157, AA010478, AA307570, AA774916, AW248398, AA374350, R88663, AA137171, AA458763, R30862, AW206472, AI823690, AA092403, AW449148,

					AW274454, AI557426, AI541056, AF044127, and AL136295.
HBGDA14	114	866258	1 - 879	15 - 893	AC024580, and AC074220.
HCHNJ32	115	934848	1 - 899	15 - 913	AI991112, AI573258, AI589871, AI382182, AW168298, N63300, AW245578, AW245568, N30214, AI244679, AA442766, AI015935, AA625514, AA714315, AA613669, AI669114, AA433946, AA568688, AI808444, N63050, AA813327, AI281530, AI885837, N52392, AA811995, AA492250, AA507560, AI221056, AI083879, AA446582, AA720021, AI557529, AI085835, AI557530, AI304532, AA313563, AA305352, AA838602, AA430753, AA573777, AI304455, AA782093, AA446709, AI690776, T73332, AA885566, AA573537, AI566973, AA720002, AA861893, AI283278, AI304454, AI199547, H72469, AI160878, AA531050, AI472891, W00555, N32117, W00611, AI937637, N54353, H95032, H78356, AI571328, T61807, AA876623, AW204782, N78252, H65466, AI004311, R50529, AW138834, H64869, F21642, AA086353, AI264256, AA652483, AI859175, H85048, AA418354, AA501347, T61353, AA134203, T55136, H91692, AA431169, T60510, AI141454, Z30219, AI985397, H93999, AA855127, R50625, H72870, AA291581, AA293323, AI858739, T73417, AW150864, H73548, C00330, H91789, T98646, AW300104, R86214, AA432189, AI382568, H77954, AA918480, T73347, T72288, AA478304, N59791, AI251780, F15963, AA478363, T72293, AW207071, T71510, AA230200, AI918444, AI927580, AA134202, N88648, AA974081, AI954738, AA429728, Z20777, N56787, N72798, AA541321, AA641099, T73399, T71348, H84670, T98698, AI567583, AI126088, AW440575, H78357, T72864, AA983562, Z20778, N40867, AA229346, H47484, T71167, AA230291, T72848, AI470293, AI570966, AL042384, AW168823, AI358042, AI805688, AA603709, AI869377, AI567637, AI697324, AI335426, AI348777, AW148716, AW189415, AI241792, AI678762, AW262565, AI537617, AI800453, AI500039, AI624293, AI932818, AI648684, AI345688, AI494201, AI249877, AL040241, AI623682, AI446124, AI680280, AW169624, H42825, AA464646, AI573026, AW058233, AW130849, AI570997, AL046356, AW117919, AI249962, AI310500, AI699011,

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					AF000145, X72889, S76508, A18788, A93016, E04233, Y08769, AF106697, AF061795, AF151685, U00686, AL122045, AF040751, AL137658, AL050277, AF113694, AF114170, X00861, S36676, AL050138, AF051325, AL049452, AF114818, A07647, Y14314, E08631, AL137558, AL080140, AL080124, AL080086, AF067790, AF113690, AF028823, AL133558, AR000496, X62580, AL137560, U39656, AL133081, AL133557, U42031, Z37987, AL122100, AL137711, Y09972, AL133016, AF146568, AL133113, S77771, A12297, AF102578, I68732, I41145, AL133104, AL137478, AL117585, E01314, AL137273, AL117394, AF137367, AF104032, X81464, A08911, AB016226, AF118064, U67958, AL080159, AF210052, AL133098, AF153205, AL080158, X92070, U87620, AL096744, AJ003118, AF061981, AL133568, E15569, U78525, A52563, E02221, AF106862, Z97214, AC002467, AL049460, A08907, X72387, AF215669, U00763, AL137640, AL137574, AF125948, A08915, S79832, AF106657, AL050092, AF113013, AF022363, I00734, AF078844, Y10655, AR019470, AR029490, AA418240, AA522761, and AA938645.
HCHON59	116	931082	1 - 2401	15 - 2415	AW299683, AW152065, AA315514, AA305116, AI961078, AA210776, AW236710, AA622988, R56767, W04752, AA781427, R25303, R89462, R96008, R18161, N76920, AA694165, R24760, AA740627, Z19446, AW074408, AA345403, AI076025, AA348726, T86393, AA875871, AI224620, AI916251, T99947, AA337010, AI077381, AA749291, H17194, T79510, AA004316, AA363905, AA815288, Z25140, AW044490, R89463, R17355, H17900, T98732, AA054853, AW085956, AA211903, AA716584, AW297867, Z20433, AA133996, R95999, H52630, AF029260, and A74519.
HCUGN19	117	716989	1 - 584	15 - 598	R83518, H01355, R83503, AA204689, AI990886, AI660160, H45024, AI300806, AI969915, AI927423, AI457940, AI744631, AI928256, AI380503, AI867197, AW237763, AI800708, AI588959, AI765531, AW300271, AI830241, AI762594, AA828477, AW058189, AI871379, AI740633, AW301155, AA937166, AW316942, H44971, AA804639, AA535256, AW071230, R31122, R65687, H01309, H28671, AI829069, AA767789, AA953355, AW138552, AI870155, AI092045, and AA207090.

HCUGR38	118	706471	1 - 332	15 - 346	
HDPND85	119	852628	1 - 841	15 - 855	W58472, W58514, T49180, AI356759, AW351512, AC003042, AC003042, and AC003042.
HDPRN38	120	883658	1 - 811	15 - 825	AA232176, AA232159, H84466, AA332911, and AI765848.
HE8AM92	121	952610	1 - 643	15 - 657	AA071290, AI830204, AI344107, R54083, AI764987, AI921148, AA815201, AI361541, AA122312, AI284342, R60683, AA399256, AW004629, T65297, AA350782, AA337811, N46213, AA151813, AA888883, F02683, F10790, F03793, H29594, R40964, R39944, R48971, W20302, AI734217, T36239, R41712, F11810, R44252, R44573, R50366, AI668657, AA331654, AA577350, F03445, AA328526, F01488, AI284343, F01581, AA334776, T25071, AA386170, F02156, AA748545, T31990, F01582, F01520, N23786, AA779556, AA425224, AJ243721, and AF182814.
HE9RE21	122	888243	1 - 972	15 - 986	AI589113, AL120391, AA326268, AA224260, R83178, T78371, AW136392, AA317066, AL133216, AF162762, AF098786, AF162760, AF162759, AF162761, and AC040908.
HETKH30	123	884009	1 - 925	15 - 939	AA436699, AA442502, H25167, AA306355, H11845, and AA584520.
HHAME78	124	840939	1 - 413	15 - 427	AA430753, AW245568, AA625514, H72469, AA446709, AI885837, H95032, AI991112, AI382182, AA313563, W00555, R86214, R50625, W00611, AI589871, N78252, AA305352, H64869, AI573258, N30214, H78356, T60510, AA507560, AA613669, N56787, AA429728, AW168298, AI015935, H91789, N63300, H73548, H84670, AW245578, AI244679, N63050, N88648, T72288, AI669114, N52392, Z20777, Z30219, AA714315, AA433946, AA442766, AI808444, AA641099, AA568688, AI557529, AA813327, AI557530, AA492250, T72293, AI083879, AI221056, AI937637, AW440575, AA720021, AA446582, AA782093, AA134202, AI304532, T71510, AA418354, N40867, AI281530, AI304455, AA855127, N72798, T73399, AA573777, T73332, AA811995, T98698, AA838602, AI085835, H47484, AA652483, AI304454, AA720002, AA885566, AA531050, AA573537, AA918480, AA861893, AI199547, AI160878, AA876623, AI283278, AI690776, AI566973, AI472891, AA230291, H65466, T61353, H84633, N54353, T61807, F21642, AI571328, N76319, H91692, T71348, AF113123, AR009500, and A74991.
HKABI68	125	856590	1 - 548	15 - 562	AW249217, AA534535, AA115832,

					AA315785, AA429231, T08490, AW404684, Z42191, AA336855, AC007606, and AC007606.
HKMLN95	126	914083	1 - 1965	15 - 1979	AA551127, AI692457, AI765517, AI749951, AI631959, AI129348, AI949762, AI672100, AI609235, AI950134, AI692456, AI651144, AW189207, AI935651, AA868261, AI151427, AA044198, W63627, AI521732, AI949853, AA161274, AW300441, AI708643, AA868518, AI962729, AI150783, AI015909, AA595810, AI281874, AI819752, AI479243, AI745688, AI341421, AW022195, AW027973, AA132312, H99174, AA429830, AA070213, N52408, AI913890, AA856798, AI745679, AI554270, AA442125, AA554278, AA161275, AA702375, AW016589, N24457, AA070298, AA969821, AI635327, AA699477, AI458226, AA043064, AI982949, AW439708, AI687133, AW272645, AW177545, AA946996, AW341771, AW177556, AI342767, R99590, N95053, AW402507, AI074359, AI630618, H84183, AA557498, R25323, AA446257, R43298, AW243239, AI583569, AW194714, AA551069, R92184, AA557798, AI433955, AA714014, N66644, AI824194, R87671, T57956, AA313194, AI921595, AI208421, T57874, AA027072, AA156655, R87665, AI370681, R14400, AA352103, R87659, AA860614, AI140574, R24026, N58584, R87672, Z38717, AI870045, AW151040, R84296, AA542839, AI277638, R92288, AA307482, AI954284, AI472463, N67635, AA442124, R18926, R84303, AI632684, N72814, AI472552, Z42525, R84309, T94235, R26521, AA091407, AA876334, T26330, AA565557, AA609829, N53150, AF078850, U81186, and AF064635.
HMCFA91	127	959954	1 - 1073	15 - 1087	AW194384, AI921843, AW025219, AI024367, AI688167, AA861776, AI189664, AI627470, AW316534, AI200318, AA969204, AA505874, AA805925, AI077983, AI401269, W58728, AA026664, AI299373, AW075217, AI676036, AI890667, AW118903, AI937114, AA573507, AA131681, AI453474, AW372475, R71771, R53357, R60094, AI149118, AA844743, AA918168, H29874, AA007217, H92161, AI262961, AA131986, T82046, AA806045, N92383, AA335794, AI024365, AI939498, W27452, AA635601, AA766069, AW243229, AW166051, AA366467, AI267768, AI572256, H92160, and R71811.

HNTBF75	128	836701	1 - 402	15 - 416	AI659901, AF078850, and U81186.
HPTGB43	129	726460	1 - 492	15 - 506	AA573537, AI160878, AA885566, AA861893, AA433946, AA568688, AA811995, AA442766, AA838602, AW168298, AI283278, AI015935, AA782093, AI472891, AI199547, AA573777, AI085835, AI669114, AI690776, T61807, AA652483, AA086353, AW204782, AI004311, AI566973, AA501347, AI281530, AA876623, AI589871, AW138834, AW245578, AA613669, AA714315, AA813327, AA507560, N52392, AA492250, AI221056, AA446582, AI083879, AI304532, AI304454, AA531050, AA720002, AI304455, AA720021, N54353, AA418354, AI937637, AI573258, AI382182, AI557530, AI244679, AI557529, AA305352, N30214, H85048, AA918480, AA230200, AI571328, AI859175, AI264256, F21642, H65466, AI991112, H91692, C00330, T73417, N63050, H93999, AW300104, AI885837, AA134203, T71348, AI808444, N32117, AI985397, AA855127, AA431169, T55136, AA291581, Z30219, T73332, H72870, H77954, N63300, AI141454, AA293323, AA432189, AW150864, T61353, T73347, AA229346, T72864, N88648, AI251780, AA641099, AA625514, R50529, AW245568, H78357, T98646, F15963, AA430753, H72469, AA313563, H85040, AA446709, AA938645, AA522761, AF113123, and AR009500.
HPTVL90	130	509487	1 - 322	15 - 336	AI694439, AI742084, AI808204, AI458889, AI005161, AI472051, AI126407, AA994212, AI564776, AI379936, AA044826, AW418896, AA335622, AI308950, AI948596, AA996109, AI798664, AI689840, AI802140, AI570505, AI268684, AI738645, AI708063, AW166260, AI742586, AI819324, AI018575, AA983545, AI051014, AI823636, AI498702, AI948603, and AF126781.
HSKIA89	131	837986	1 - 909	15 - 923	AW204099, AA314747, AA249613, AW301249, AI261562, AA775742, AA609749, AI446434, and J02649.
HTXGF27	132	695766	1 - 1283	15 - 1297	AI935291, AI565606, AW055263, AA827998, AA134925, R71442, W73084, W37623, AI376157, AW071733, AA760869, AW084636, AW084135, N40260, W37624, AA621956, AI261507, AI024926, AA576858, AA782442, AI753564, W73188, AA457140, AI362706, AI088401, W37568, N80584, AA100989, AI870558, AA552108, AA464487, AA577315, H99262, N42314, AA135041,

					AA099421, AA917378, AI955891, AW009052, AI865605, AI811602, W37443, AA506577, N28234, AI564918, W00732, H56180, AI784357, W07706, AW407317, AI571677, T64405, AI018764, AA297089, R71095, AA297614, F19530, AA628651, H56396, AA588512, T64219, AI291707, R39750, AA622681, R36668, AI564962, AA814874, AI868306, AW247018, AA082510, C00495, AL117567, and AF151851.
HWHHW5 4	133	684125	1 - 1134	15 - 1148	AI537869, N58734, R97517, N65985, H59433, AA022869, H70636, R97516, AA011230, AA443442, AA057027, W05627, AW192697, AA808430, AA780044, AI022809, AI041819, AI986294, AI336274, W39201, AA883903, AI073467, AI740785, AI871953, AI521233, AW009412, AW157214, AA554447, AI742678, AA863294, AA937977, AI589839, AA595998, AA689601, AA932317, AW152255, AA886725, AI669406, AI034240, AI925407, AA036917, AI887353, H47150, AA846564, AI127132, AA978039, AI139401, AA806498, AA443308, AI338458, AI042442, AA890338, AA992867, AA463838, AI085301, AI263340, AA026818, AI277999, AA917926, AA854105, AI080542, AI348041, W07723, and AA460271.
HWHPO29	134	857383	1 - 657	15 - 671	AL049779, and AL049779.
HWLPR94	135	967326	1 - 484	15 - 498	AA304808, AI041126, AR028677, and AF067174.
HWLUL28	136	925331	1 - 738	15 - 752	AA312283, T85523, F06560, AA669475, and AF044574.
HWLXT48	137	957630	1 - 440	15 - 454	AA932449, AA306873, AA305881, AW245862, AA088641, N44651, N31513, R25850, R88663, AW248398, AI073401, AA137171, AW449148, AI824292, AL136295, and AF044127.
HBGMD15	138	1103922	1 - 641	15 - 655	AW178905, AW177440, AW360811, AW375405, AW178907, AW178893, T03269, AW366296, AW177733, C14389, AW179328, D58283, AW178762, D59859, D80022, D50995, C14331, D80166, D80195, D80193, D59927, D59467, D51423, D59619, D80210, D51799, D80391, D80164, D59275, D80240, D80253, D80043, D59787, D80227, D59502, AW377671, AW378532, D81030, AW375406, AW378534, AW352158, AW377676, D80024, D80212, AW179332, C14429, D80196, D80188, AW377672, AW179023, AW178908, D80219, AW352171, AA305578, C15076, D80038, D80269, AA305409, D80366, D57483, D51022, AI905856, D50979, D81026,

					D59889, AW177731, AA514188, D80248, AW352170, AW378528, D80045, AW179019, AW179024, AA514186, D51060, AW178906, D80522, C14014, AW179020, AW178980, D80133, D80439, D80247, T48593, D80132, D80268, D80134, D80302, D51097, D51103, D58253, C06015, AW378533, D45260, AI525913, D89785, X67155, A84916, A67220, A62300, A62298, Y17188, A78862, D34614, D26022, AJ132110, AR018138, AR008278, Y12724, AF058696, A25909, D88547, AB028859, X82626, AR025207, A94995, I50126, I50132, I50128, I50133, AR066488, Y09669, AR008443, D50010, A82595, AR016514, AR060138, A45456, AR066487, A26615, AR052274, AB012117, AR060385, AB002449, D13509, A43192, A43190, AR038669, A30438, I18367, AR008408, A85396, D88507, AR066482, A44171, AR060133, A85477, Y17187, I19525, A86792, A63261, X93549, A70867, AR062872, AR016691, AR016690, and U46128.
HNGMA91	139	789744	1 - 356	15 - 370	D80045, AW366296, AA585439, AW375405, AI535639, AI535660, AI905856, T18597, AA585325, AI536138, R45895, AW177440, AW377671, AA585098, AW360811, R28735, R29445, Z32822, R29657, AW178893, T03269, AA585101, Z32887, D57491, D59751, C15406, R28892, D53161, T48593, C14389, AW179328, D81026, AW179023, D80522, D61185, C15069, R28965, D58283, AA305409, AA170832, D59859, Z33559, D80022, C14331, D80166, D80195, D80193, D59927, D59467, D51423, D59619, D80210, D51799, D80391, D80164, D59275, D80240, D80253, D80043, D59787, D80227, D59502, D80133, AW378532, AI525316, AI557262, Z28355, D81030, D54897, D60765, D60844, D80269, AI557864, AW360844, AI541356, D80212, D80366, AW360817, D80196, D80188, AW178906, D80219, AW375406, AW177501, R29218, AW378534, D80248, AW177511, AI557763, AW179332, AA585378, AA305578, AW377672, AW178905, AW179019, C15076, D80038, D59610, AA585155, D57483, D51433, AI526078, C14429, D51022, AI526140, D50979, AI541365, AI525500, D80251, AI557740, D50995, D59889, AW352117, AW178762, D54850, D80024, D59436, R28895, D51060, AI541535, AI546831, AW179024, C14014, D80378, AW352158, C16294,

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					and AR008382.
HSLEI57	140	1103672	1 - 627	15 - 641	AW177501, AW177511, AW177440, AI905856, AW366296, AW178893, AW375405, D51097, AW377671, T03269, C14389, AW179328, D58283, D59859, D80022, C14331, D80166, D80195, D80193, D59927, D59467, D51423, D59619, D80210, D51799, D80391, D80164, D59275, D80240, D80253, D80043, D59787, D80227, D59502, AA305409, AW378532, AA305578, AW360811, D80248, AA514188, D80132, D81030, D80269, D80212, D80366, D80196, D80188, D80219, D80134, D80038, C15076, D57483, AW375406, D59889, AW378534, AW179332, AW178762, AW377672, AW179023, AW178905, D81026, AW352170, AW177731, D80522, AW178906, D80133, AW178775, AI535850, AW179020, AW377676, C14014, AW352171, AW179004, AW179329, AW367967, AW178907, AW178908, D80045, AW179019, AW179024, AW178980, D58253, AA514186, T48593, D80439, D80247, AW378528, A84916, Y12724, X82626, A67220, D89785, A62300, A62298, Y17188, A78862, D34614, D26022, D88547, AJ132110, AR018138, AR008278, X67155, AF058696, A25909, AB028859, A94995, I19525, X93549, AR025207, AB012117, A85477, A85396, D88507, AR066482, A44171, A86792, I18367, AR066488, A82595, AR008443, AR016514, AR060138, D50010, D13509, A45456, A26615, AR052274, and AB002449.
HSLFE21	141	1103524	1 - 1152	15 - 1166	
HSLIE40	142	1105422	1 - 497	15 - 511	
HTXHA35	143	1152110	1 - 924	15 - 938	AI707816, AI523073, AA150070, AA393871, R48107, AW002940, AA449214, AA372202, R05612, AA310756, R52299, AA361396, AA425098, R77016, AF151821, and AB015724.
HAICS07	144	1105538	1 - 846	15 - 860	H16089, AA431225, and AA432247.
HBKDN33	145	1167313	1 - 1001	15 - 1015	AA099783, H54765, H56600, R21717, AA464329, W69565, W72942, N73344, N73216, R20503, AA285107, H96024, AA284952, AA131052, AF216873, and AL049709.
HBODH62	146	1228278	1 - 3284	15 - 3298	AW170529, AI569739, AI684951, AW408053, AW262667, AA936961, AW129510, AI161063, AI565468, AI193147, AI198432, AI148726, AI168487, AI086481, AW089488, AW024920, N67766, AW025667, AI333983, AI333014, AI983417,

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					AF177401, X99226, I48979, S36676, AL080146, Z82022, AF060866, X68497, X78627, AF124396, U95114, AL137530, AF172400, AF106697, AL122100, and AF184965.
HCEPJ44	147	1157810	1 - 899	15 - 913	AA326315, F11730, and U15976.
HCWCM65	148	1105668	1 - 699	15 - 713	
HDQDY52	149	1182322	1 - 771	15 - 785	AW015554, AW139739, AA284952, AI478494, AA918422, AL049709, and AF216873.
HEEAA32	150	1203140	1 - 1920	15 - 1934	AI733019, AI821967, AI401824, AI305817, AI248775, AI791417, N63067, AA769662, AI636297, AI436700, AI373787, AI279773, AI823325, AI913400, AI431755, AW271322, AA873330, AW006890, AI433320, AW027962, and AW772149.
HEGAN70	151	839719	1 - 891	15 - 905	AA995279, M78884, and AB023151.
HFKMF42	152	1104119	1 - 1544	15 - 1558	AW025904, AW008529, AI680826, AI743467, AI083911, AI950071, AI015927, AA805175, AA251134, AA310596, AA603773, AA516361, F08785, AA953720, AI701937, AA852503, AA687875, AI873898, AA251198, AA742963, AI087970, Z41828, AA931078, AW131728, AW204102, AW244102, AA948773, AA283246, AI929279, AW081255, AI473598, AI468872, AI699011, AI866608, AI758528, AW088899, AI273843, AI446373, AI343059, AI349933, AI932638, AI345608, AW089179, AW088903, AI491783, AL040241, AI474107, AI539771, AI280561, AI537677, AI673256, AI251830, AI284020, AI610362, AI621362, AW072930, AI284509, AI289629, AI538342, AL119836, AI872724, AI825956, AI636445, AI345471, AW088134, AI950664, AA420722, AI453339, AI682968, AI929108, AI933785, AI174591, AI366549, AI636719, AI539153, AI567360, AI802240, AI611743, AW083804, AI866770, AI696626, AI589993, AW059713, AI885999, AI783792, AI475151, AW148414, AW118398, AI687630, AI828731, AA579232, AI498579, AI312428, AI868831, AW073994, AI862144, AI277008, AL038529, AI648663, AW190042, AI679321, AI273048, AI500662, AA613907, AW085799, AI682743, AI919345, AI364788, AI554427, AI524607, AW131952, AI591316, AA572758, AI538885, AI684234, AI888944, AI500146, AA176980, AI274013, AW403717, AI916419, AI568765,

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					A93016, A07588, AL133075, AL050146, S77771, AL122121, AF106862, AF008439, AC004227, AL133558, AL122111, I17767, AF158248, AL137548, E07108, U87620, AL133016, AF113676, AL137660, AL133113, AR034821, AL137648, A12297, X93495, AF118064, AL137557, AF118070, AL137271, I03321, AL133557, AF146568, AL050393, AL133565, U72620, E02152, AL117435, AF118094, AL049938, AL080159, Z37987, AL035458, U57352, U00763, AL133560, AL080124, Y10655, AF113019, X82434, L19437, Y16645, AL049283, A77033, A77035, AR029490, AL117460, AF090903, AF125948, AF090901, U35846, S78214, X72889, AF113013, A58524, A58523, AF067790, AF113690, AF090934, AF090943, I09499, AL050108, AL122123, AF078844, AL049464, AL122110, AL110196, AL049466, AL049452, AF090900, AL050116, AL137550, X65873, AF079765, Z97214, X98834, AL117648, AF113694, AF091084, AL133067, AF017437, AF113677, AF097996, Y11254, AJ000937, AL133080, AL049430, X70685, AL049314, E02349, AF111851, AL117583, AF176651, AL137459, AF120268, AJ242859, AJ238278, AL117457, L31396, AL096744, A08912, AF177401, AL110225, AF016271, AF090896, AL122093, U42766, AL133606, A03736, L31397, X63574, X96540, AL110280, E07361, I89934, AC004686, A18777, AF087943, AF118090, AB007812, U68233, I92592, AL122045, I66342, AF102578, E15569, AF061943, AR038854, AF026816, I18355, I34392, A08908, AF185614, S76508, AF119337, AJ012755, AL137558, X83508, AL050170, AR068751, AF067728, U49908, U53505, S83440, AL133568, AL137429, E03671, AF069506, AF079763, M27260, AL080126, AL133072, AL137521, U91329, D83989, L13297, AL137523, AF159615, A07647, AL050092, I00734, S75997, S63521, X79812, AL133645, X89102, U96683, AF090886, X99717, E00617, E00717, E00778, AL137658, AL110159, AF003737, A65336, AL050172, AL133098, AF094480, AL080140, and AJ010277.
HFPHG06	153	1104964	1 - 436	15 - 450	AA585101, AA585439, AI541374, AA585476, Z30131, R29445, AI525431, C16305, AI541365, Z28355, AI525556, T11028, AI540967, AI526140, T41289, AI526073, D61254, C16300, AI541523, D57491, AI546999, AI547039, AI557731, R29218, AI546945, AI541514, D55233,

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| | | | | | R28965, R28892, AI546855, AL038761, AI541390, AL045989, AL080031, AA170832, AL046147, T41329, AL037341, D53447, AA585098, AL042096, T23888, AI546996, AI525339, Z32822, AL045211, AL079852, AI526176, AI526187, D60765, AI541534, AL037443, AL037335, AL037343, AL134524, AI526180, AL039360, AI526125, AI526113, AI540920, AI557238, AA585329, AI541517, AA585434, AL043941, AR038855, AR062871, AJ244005, A25909, Y16359, AF082186, AJ244004, AR062872, AR062873, D78345, AJ244003, A43189, A43188, A20702, AR017907, A20700, AR038762, A98420, A98423, A98432, A98436, A98417, A98427, AJ244007, A98767, A93963, A93964, I63120, D50010, A85395, A85476, A84772, A84776, A84773, A84775, A84774, AR037157, X83865, AR067731, AR054109, I19525, AR067732, I44681, A86792, A58522, A91750, Y09813, I05558, Z32836, I13349, I18895, A18053, I08396, I84553, I84554, I15717, I15718, E03627, I48927, A90655, A02712, A77094, A77095, A81878, A95051, I06859, A18050, A23334, A75888, I70384, A60212, A60209, A60210, A64973, A60111, A60211, A23633, AR007512, AR031566, A35537, A35536, A02136, A04664, A02135, A04663, I00682, A11624, A11623, E00609, E13740, A11178, E01007, A10361, I08395, AR043601, M28262, A11245, I08389, I03331, E12615, A02710, AR035193, A92133, E14304, A07700, A13393, A13392, I62368, AR031488, I13521, I52048, A27396, AR027100, I49890, I44531, I28266, I21869, A91965, I44516, A70040, E16678, A82653, E16636, A93016, AF149828, A24783, A24782, A95117, A58524, A58523, I01995, I25027, I26929, I44515, I26928, D13316, I26930, I26927, I08051, D13509, X81969, AR038066, AR008429, U94592, I60241, I60242, AB025273, A22738, A20699, E00696, E00697, E03813, I66482, AR009151, I66485, I66483, I66484, I66498, I66497, I66496, AR027099, I66486, I66487, AR051652, AR051957, AR051651, A70872, AJ230935, A70869, AJ230902, AJ230867, AJ230972, AJ230951, E12584, AJ231028, E17098, I66495, I66494, X07299, AC005913, AR064707, A22734, AR022273, AJ230845, AJ231009, AR035975, AR035977, AR054723, I36244, X55486, AR051864, |

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HHEMB89	154	1227613	1 - 3551	15 - 3565	AW007194, AW170529, AI569739, AI684951, AW408053, AW262667, AA936961, AW129510, AW024994, AI161063, AI356425, AI565468, AI762466, AI193147, AI198432, AI148726, AI168487, AI086481, AW089488, AW024920, N67766, AI333983, AI333014, AW025667, AI983417, AI018650, AA811890, AA993603, AI202461, AA580377, N62890, AI300259, AI161057, AA393307, W03611, AI478819, AI241110, AA469272, AW403243, N77799, F24483, AI499835, AA469350, H64730, AA398596, T89688, AA554637, T74061, T75294, AW242634, AW084564, H65220, AA776574, F09996, F12376, T23633, T23643, AI361179, AW134803, R57093, N87378, AI832144, AA453016, T89511, AL079802, AA912043, AA367754, AI419826, AI687568, AI370623, AA916133, AI421149, AW105296, AI638644, AI590043, AI254731, AI538085, AI560004, AI803937, AI307285, AI247267, AI364167, AI287476, AI499623, AI522256, AA279341, AW044367, AI349482, AL046466, AI590549, AW075382, AW262552, AI799183, AI287326, AI302775, AI866469, AW188525, AI422002, AI540350, H89138, AI619820, AW130202, AI678623, AI890507, AL039011, AI699823, AI927233, AI282669, AW050850, AI364592, AL080011, AI695857, AW080700, AI638798, AI884318, AI250353, AW166870, AI798456, AW004606, AI537024, H95782, AI656428, AI624624, AI570807, AW192300, AI673363, AW262491, AI890628, AI440422, AA788861, AI829327, AI927899, AI919600, AI688241, AI538564, AI915291, AI636588, AW152182, AI471325, AA835851, AI582932, AA729017, AA019328, AI583578, AI889189,

					AI539800, AW131294, AW128834, AI539847, AI421252, N25033, AI802542, AI266652, N21402, AI670009, AI648509, AI869765, AI678446, AI392793, AW198021, AW087538, AW027898, AI075885, AI570909, AI701097, AW008226, AI499570, AI673140, AL035661, AL080312, AF007142, I89947, S82852, A07588, AL080159, AL117587, L35261, AL133559, Z13966, I17544, AR038854, AF076633, AL133016, AF067790, AF126488, AF061981, Z97214, A41575, Z82022, AL080146, L04859, A52184, AL133640, AL133100, AL137476, AL133084, AF080068, AF222801, AL050138, AF054988, AL080148, A21103, S36676, AL137716, U35846, X82434, S38729, A31001, S57698, A17115, A18079, X97332, AL133653, AF100752, AL133026, A60092, AL080154, and AW513684.
HLDPC46	155	466567	1 - 668	15 - 682	AI791417.
HLDRG44	156	1106225	1 - 2229	15 - 2243	AI263099, AA865601, AI310515, AI310517, AW275359, AW129211, AI671382, AA862395, AI245451, AW024686, AI522042, AI493860, AI075158, AI934344, AA962431, AI076565, AW294154, AI311802, AA582271, AA894912, AA873319, AI340924, H77532, AI632011, AA913289, T68855, AA344912, R92627, AA975849, AA923512, AI261211, T72069, AI274430, W85851, AW295240, AW449145, T58758, AA886200, C20969, T54622, AA677577, AW204090, AI431736, AI733070, AA886328, AA876291, AI733075, T61088, AA938341, AW300484, AI824065, AI763277, T68930, AC003034, AF062389, AF126145, AW511916, AW515489, and AW614210.
HLICR73	157	1107517	1 - 525	15 - 539	T69381, Z20524, AI765674, AW025169, AI565556, T72971, AL042852, and AF064255.
HNHOP64	158	1103943	1 - 1057	15 - 1071	AW291640, AL135367, AC006312, and AF055899.
HSDEF56	159	1128288	1 - 972	15 - 986	AA311582, T03269, D58283, D80166, D80195, D80193, D59927, D51423, D59619, D80210, D51799, D80391, D80240, D80253, D80227, D59859, D80043, D80212, D80196, D80188, D80219, D80269, D80038, C14429, D59889, D81030, D80366, D80022, AI905856, D59502, D59275, D50979, D57483, D80045, D59610, D80134, D50995, D80378, AW178893, D80024, D59787, C75259, D80241, D51097, C14014, D80164, AW177440, AW178775, C14331, C15076, D59467, D51060,

					D81026, AA305409, C14389, AW378532, AW179328, D58253, AW178762, AW177501, AW177511, AW352158, AW352117, AW375405, D80949, D80168, AW176467, D51079, D51022, AW366296, AW360811, AA305578, AW377671, D59695, AW360844, AW378534, AW360817, AW375406, D80248, AW179332, AW377672, AW179023, AW178905, AA514188, D80251, AW178754, D52291, AW352171, D80522, AW377676, AW179220, AW352170, AW177731, AW178907, AW177733, AW179019, AW179024, D80132, AA514186, D80133, AW178906, AW177505, AW179020, AW178909, AW177456, AW179329, AW178980, AW378528, AW178908, AW179018, AW178774, D80268, AW179004, AW178914, AW178911, AW367967, D80302, AA033512, AW352174, AW177723, D80439, D80247, T48593, AW178983, D51103, AW378533, AW367950, AI535850, C06015, C14975, AW178986, D45260, AI525913, AI525923, A67220, D89785, A62300, A62298, A78862, X67155, A84916, AJ132110, A25909, AR025207, D88547, D34614, D26022, Y17188, X82626, AB012117, AR018138, A85396, AR066482, A44171, A85477, I19525, A86792, X93549, AF058696, AR008278, Y12724, AF135125, AB028859, U87250, A94995, AR008443, D88507, AR064240, I18367, I50126, I50132, I50128, I50133, AR066488, AB033111, A82595, AR016514, D50010, AR060138, A45456, A26615, AR052274, AR066490, Y09669, AR060385, D13509, AB002449, AR066487, A43192, A43190, AR038669, A30438, AR008408, Z32749, U87247, Y17187, AR060133, U79457, A63261, AB023656, X93535, AR062872, AR016691, AR016690, U46128, and AR008382.
HTENI29	160	1105518	1 - 1503	15 - 1517	AL041092, AI637690, AI680857, AI740628, AA868429, AI797114, W91992, AW235369, AI631483, AA700220, AI149964, AI802194, R60173, AA426087, N49244, AA421494, AA421463, AA679411, AA700001, AW196345, AI658711, AL041091, H78858, W91993, H12231, R60174, R22644, F07666, H12232, AI084952, T81757, AA843570, F03921, H48232, AL044279, H80102, F02043, R11534, AA701011, AW086177, M85939, T81502, AI081721, T97095, AI458652, AB020644, A86971, A86968, AF129166, A86970, A86965, AF099740,

					A86972, D10041, S56508, A87056, A86969, AC005217, A86966, AF102845, and A86967.
HWMKD72	161	1106729	1 - 1199	15 - 1213	AI832076, AW237392, AI492488, AI671332, AI653589, AA934764, AI186209, AI863485, H78628, N49567, AI625982, D12051, AI984413, F32232, AW299579, AI521141, AI473099, F34601, AW269310, F37206, AI342204, AI015555, AW445187, AI655530, AI337199, AW236573, AW004007, AL137715, AW611824, AW771245, and AW771974.
HAPSQ21	162	972037	1 - 851	15 - 865	T54068, AA359075, R11458, W19120, AI792425, AI129970, AA769575, AI924523, AW025398, Z25401, AA865691, AI271768, R18105, AR016588, AF098484, AF200345, AF090386, A70198, A70213, AF098485, AF200344, AF090387, A70212, A70208, A70207, A70206, A70205, A70210, A70202, A70200, A70204, A70201, A70203, and A70199.
HLJDW02	163	1192885	1 - 659	15 - 673	AI129970, AW025398, AI924523, AI679000, AI763426, AW268846, AI221418, AI806766, AI760722, AI382062, AI523866, AI832066, AI568939, AI191525, AI218262, AA744560, AI271768, AI732751, AW183525, AW169990, AA769575, AA651895, AI734145, AI147572, AA642140, AA486148, AA983960, AA648499, W19120, AI808932, AI094586, AI141016, AI056559, AA828295, AW444801, AI056557, AI217799, AA486087, AA972068, N45144, AA946631, AA279744, AA648280, N79802, AA830508, AI369218, AI245364, AA953132, D30983, AA203626, AA804495, AA865691, AI807188, AA970454, AA894808, AF090386, AF098484, AF200345, AR016588, AF098485, A70198, AF200344, AF090387, A70213, A70212, A70209, A70210, and A70200.
HMGBT01	164	1205666	1 - 5911	15 - 5925	AF150387, AI653425, AI005033, AI692559, N31914, AI962190, AW383588, AI769238, AI654166, AW188218, AW006416, AI632945, AI672507, AA908788, AI953133, AA922033, AI688071, AI692756, AI027143, AI609790, AI760187, AI123804, AI913960, AA908787, AI276907, N41658, AA701598, AI967995, N91120, N29007, AI379548, AA253253, AW086447, AI051280, AI692767, AI911581, AI634776, AI810313, AI095556, AI127822, AW015855, AI361393, AI199400, AI630762, N20635, AI094243, AI239472, AI253031, AI690614,

					AA099206, AI857994, AA282999, AI830072, AA677847, AA928329, AI248727, AI910447, AW027907, N67014, AI339231, R55298, AI292335, AA973564, H15683, AW207715, AI624463, AA448660, H24093, AI040388, AI784615, AI419567, AI374818, AI160390, AI436314, R39439, AA253083, AI343441, N95768, AI041665, AA136368, AA954460, T16305, W03585, AA256913, AW069659, AI081812, AA324296, AA738306, T08924, T61851, AI184285, AI040286, R99766, AA046100, W24881, Z43398, R54499, AA682676, T88844, H72735, H15682, AW016716, AI874047, R55398, AA015899, AW069573, H48909, AA255489, AA213582, H43536, T09492, AA705405, Z39584, AI283626, F10602, AI308238, R59459, T31012, AI371450, AI356651, N67783, Z40730, AI669838, H14539, R12815, T15416, F13007, N67536, Z44997, AI684849, AA015900, N64823, W19698, F12164, R01229, T77182, AA723830, Z41972, H14538, T75407, AA970909, H72736, N57556, R45449, R59399, AA861305, W78750, T31527, AA207232, T31207, H48910, AW173775, AA213470, AI696048, T09493, F10964, AA918558, R14536, H20326, AI419576, R98988, AI654890, T82253, F02791, Z41879, AA136283, AW418881, R32713, R10094, W86081, Z42912, R32714, F01374, F02384, H19939, T89769, R54400, R39272, Z39127, W20500, N42699, AA864263, R31458, AW379778, R20727, AA063085, F09798, N75675, R12478, H22915, R10194, R09874, R24715, Z42680, AI363357, W80488, F13372, AA678175, R41197, AA063135, T83530, N89954, R01343, F01493, AA758721, Z43512, H51212, AA665039, T65256, AA448756, R51553, F08640, AA045995, R51552, T72699, H60273, AA703165, AA249617, AI914223, AI700590, R31457, AI268856, AI214600, N83162, AI300027, T72629, AA249730, AA706090, AI299415, AI557082, D51002, D59751, D50992, AF201468, AB032975, AF200193, AF190725, AF200343, AF204943, AF190727, AF190726, AF200346, AF161367, A62300, T15417, AI127789, and AW770546.
HSSJJ24	165	1178041	1 - 2545	15 - 2559	AF150387, AI005033, AA701598, AW015855, AI095556, AI127822, AI094243, AI857994, AA677847, AI248727, R55298, AI040388, AA136368, AI081812, H15682, R55398, AI874047, AA705405, AI308238, AI669838, F13007,

					AA723830, AA970909, H14538, AA207232, T75407, T08924, AA918558, Z41879, AA136283, AW418881, R12478, AA063085, R12815, R09874, T89769, AA063135, AA758721, H51212, AA665039, AA249617, H60273, AA703165, AI914223, AI700590, AI268856, N83162, AI214600, AI300027, T09493, Z43512, AA249730, AA706090, AI299415, AF200343, AF201468, AF190725, AF200193, AF204943, AF190727, AF190726, AF200346, AB032975, and AF161367.
HFTCG46	166	669383	1 - 446	15 - 460	AA418122, AA071341, AA418034, AI081559, AA206778, AA463885, AI632139, and AB021660.
HNTMD81	167	929511	1 - 547	15 - 561	AI800075, N88280, N35665, AA418208, AI686505, H97489, R07706, H60753, AW023374, AA418073, AW027850, N67776, AI168759, AA620395, AA700811, N36146, AB025904, AL365403, AL365403, AL138795, and AL138795.
HBSAJ60	168	1174334	1 - 3412	15 - 3426	AA113322, D79592, AA113421, D62407, D62416, AA113364, D79529, D79548, D79554, and D79578.
HSKCI43	169	506599	1 - 336	15 - 350	AC068494.
HSDKE47	170	1128095	1 - 339	15 - 353	AA524812, AA551149, AI052375, N84879, AW242155, AI671023, AW103996, AI590357, AA316405, AW007038, AI818254, AI246543, T61234, H08133, AF114111, AW069305, AI937929, W22960, AF013160, AF050640, and X14338.
HCWTB56	171	1172460	1 - 475	15 - 489	
HFPBS73	172	1144027	1 - 1461	15 - 1475	AA027758, AA585439, AL039924, AL045794, T24112, T24119, AW013814, AI525556, T02921, AI541510, Z28355, AI546855, H00069, AL039150, D51250, C15189, AL040992, AL039109, AL038531, AL037726, AL039629, AL039625, AL039648, AL038837, AL039074, AL039678, AL039108, AL039538, AL039564, AL039156, AL038821, AL039659, AL039566, AL039509, AL043445, AA585101, AI541374, AI525316, AL039128, AL044407, AL036973, AL036725, AL045337, AL037051, AL045353, AL039386, AL039423, AL045341, AL042909, AL039410, D80253, AL043441, AL038025, D80043, AL044530, AI526180, AL043422, D59787, AI526194, Z30131, D80219, AI541523, D59275, AI556967, AL043423, D80227, T23947, C16300, AA585453, AI546999, AI525431, AI541017, D80240, AI546828, AI541534, AI540967, AI526140, AI541509, AW451070, T11028, AI525306, AI535983,

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HOEDD44	173	954893	1 - 742	15 - 756	AA027758, AI526037, and C16284.
HSUAN33	174	956315	1 - 1745	15 - 1759	AI693488, AA523696, AW082970, AA847735, AA504846, AI525023, and

					AA331650.
HBCMD49	175	1206021	1 - 907	15 - 921	AI190179, AA632398, AI452983, AA436085, AA974047, AA746327, AA856609, AA379426, AA954235, AI015697, AA435985, AA379438, AI561289, F17297, and T53860.
HKABN12	176	956826	1 - 886	15 - 900	AI190179, AA632398, AI452983, AA436085, AA974047, AA746327, AA856609, AA379426, AA954235, AI015697, AA435985, AA379438, AI561289, F17297, AI567961, AI440236, AI590043, AI355779, AI581033, AI866465, AW151136, AI866469, AI539771, AI537677, AI494201, AW151974, AI500659, AI539260, AI815232, AI801325, AI500523, AI538850, AI582932, AI923989, AI284517, AI872423, AI500706, AI491776, AI445237, AW151138, AI889189, AI521560, AI500662, AI284509, AW172723, AI889168, AI440263, AI866573, AI633493, AI434256, AI805769, AI434242, AI888661, AI284513, AI888118, AI859991, AI436429, AI889147, AI371228, AI440252, AI866786, AI539800, AI860003, AI610557, AI242736, AI887499, AI539781, AI559957, AI926593, AI582910, AI554821, AI440260, AI537187, AI432570, AI815233, AI648567, AI698391, AI687944, AI539632, AI433157, AI521571, AI355126, AI890907, AI539707, AW085373, AW023351, AI582912, AI801286, AI371251, AI358271, AI866510, AI538885, AW079432, AI567953, AI582926, AI923046, AL045626, AI887775, AI559976, AL047422, AI500714, AI432644, AI491710, AI205869, AI613314, AI804505, AI828574, AL036705, AW151132, AW089557, AI289791, AL042686, AI927233, AL039390, AI866691, AI285439, AW162194, AI623736, AI431307, AI440238, AI285417, AI567971, AI815239, AI431316, AL079960, AW151979, AI431238, AI702065, AI885949, AI285419, AI521589, AI469775, AI866581, AW074057, AI815150, AL045166, AI446495, AI866458, AI867068, AI225248, AI436438, AI698352, AI866503, AI623302, AI270429, AI274759, AW058275, AI952433, AI889191, AL047344, AI433976, AW194509, AI432666, AI627714, AI371229, AI888022, AI955221,

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HMOAC31	177	1228291	1 - 2627	15 - 2641	C16297, D62438, and D79589.
HMVBQ92	178	1204710	1 - 2399	15 - 2413	AW027617, AW167655, AI761852, AA632135, AW273477, AW188958, AW025350, W91943, AI248475, AW071025, AA443956, AA586906, AA411210, AA974499, AA748561, AA574049, AA633212, AA993212, AA444135, AW294610, AA405832, AA418055, T65000, AA417996, AA716696, AA422102, N29931, AA705781, AW338423, AI951713, AI623473, AW193961, AW269824, AI591113, W74344, N39885, AI476814, AI452555, W95062, N58311, AI707848, AA434443, AA504192, AI284330, AW071570, AA833607, N26927, AA993753, N27730, N27744, H48786, AA814543, H69589, H91115, AI050821, R59175, H91466, AA723025, AA708478, AA412129, T53881, N80150, R59231, AA325056, AA805411, H86410, H86073, AW265431, AW080735, AA719996, H48787, AA327279, AW439101, R72184, AI041429, AW439110, AA932990, AA290758, H68481, AA290757, AI301278,

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HOELA62	179	1228151	1 - 2120	15 - 2134	W91943, AA444135, AA422102, AW027617, AW167655, N39885, H48786, AI761852, H91115, R59231, AA325056, AW273477, H86410, AA632135, AW265431, AW188958, AW025350, AW352186, W21241, AA290757, AW366339, AI248475, AW071025, R70407, W03678, H75371, T50944, AA443956, AA586906, AA411210, AA974499, AA412129, AA574049, AA748561, AA993212, AA405831, AI951713, AA419235, T65000, AA418055, AA405832, AA633212, AA417996, AA716696, AW338423, AW294610, AA705781, AW193961, C05231, AW269824, AI623473, W74344, AA434443, AI476814, AI707848, AW071570, AI452555, AI591113, R72230, T71152, AI284330, W95062, AA336401, AA993753, AA833607, AA814543, N29931, H69589, N26927, H91466, N27730, AI050821, R59175, AA805411, AA708478, AA723025, N58311, AA504192, T53881, AA342345, N80150, AA327279, N27744, AA719996, AA419337, AW439101, F37718, AW439110, H86073, AI041429, AA932990, AA317298, AA290758, R72184, AW080735, and AI301278.
HSSGE35	180	1228152	1 - 1116	15 - 1130	AW027617, AI761852, AW167655, AA632135, AW273477, AW025350, AW188958, AI248475, AW071025, AA443956, AA974499, AA586906, AA411210, AA748561, AA574049, AA993212, AA405832, AA418055, T65000, AA633212, AA417996, AA716696, AW338423, AW269824, AI951713, AW294610, AA705781, N29931, AW193961, AA928847, AI623473, W74344, N58311, AA434443, W95062, AI452555, AI476814, AI707848, AI591113, AW071570, AA504192, AI284330, AA993753, AA814543, AI298655, AA833607, R59175, H69589, N27730, N27744, AI050821, H91466, N26927, T53881, AA723025, AA412129,

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HEMFJ74	181	1216651	1 - 1774	15 - 1788	AW294538, W23746, AI078278, AA293414, C14389, AA305409, AW369384, AA305578, D59859, D59619, D80210, D80240, D80188, D51799, D80166, D51423, D80253, D81030, D58283, D59275, D80219, D80212, D80022, C14331, D80195, D80043, D59467, D80391, D80164, D59787, D80227, D59502, D57483, D59610, D80366, D80248, D80024, D59889, D80196, C15076, D59927, D80269, D80038, D50979, D51022, D80193, D50995, D80241, AA514186, D81026, D80378, AW177440, D51060, AA514188, C14429, AW178893, D80251, D80045, D80522, D80133, T03269, C14014, C75259, AW360811, AW179328, D80268, C05695, AW378532, D80439, AW375405, AW177501, AW177511, AW377671, AW360844, D80247, AW178762, AW366296, AW360817, D51250, AW375406, AW378534, AW179332, AW377672, AW179023, AW178905, D80134, AW178906, D80302, AW178775, D80132, D58253, AW352158, D59373, AW352117, AW176467, AW352171, AW377676, AW369651, AW352170, AW177731, AW178907, D51759, AW179019, AW179024, D80157, D51103, AW177505, AW360841, AW179020, AW178909, AI910186, AW177456, AW179329, D52291, F13647, AW178980, AW177733, AW378528, AW178908, AW178754, AW179018, D80949, D58246, AW179004, D80168, AW179012, AI905856, D81111, C14298, AW178914, AW179009, D51079, AW378525, T11417, C14227, D80064, T48593, AW177722, D59653, C06015, AW367967, AW352174, AW360834, AW178983, C14407,

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HISCL24	182	676997	1 - 574	15 - 588	AW294538, W23746, AI078278, E15871, E15865, E15866, AB016789, and AB016780.
H7PBB83	183	1228150	1 - 1350	15 - 1364	AI866480, AI983534, AI274967, AI333019, AW303755, AW452025, N31757, N31555, AA496999, AA161418, AL040482, AA630664, N39479, AA648068, AI114875, T68311, T51330, H95917, AA648602, AA308992, F37190, AA403243, AA830558, AA262117, N98795, AA186599, F28863, N57116, AA595742, AI913895, AC007450, L39119, Y11107, D44443, AR038762, AJ005168, AJ245869, U67221, AF054142, and AF019721.
HAGBA63	184	1122199	1 - 1108	15 - 1122	AI674718, AI685739, AW162539, AI968464, AI636234, AI380384, AI949139, AW190860, AA600836,

					AI476539, AI218004, AA046407, AA837397, AI190723, AW445018, AI696086, AI253152, AI280816, AA910260, AI270119, AI336795, AI393433, AA654266, H49124, AI383818, AI800287, AI628214, H50384, AA878814, H88208, AI630586, H40173, H40108, R41323, AA379177, H88209, AA056167, AA903289, AI301246, and AF042169.
HBMUG47	185	1102698	1 - 1051	15 - 1065	AI684041, AA155835, AI567000, AI671940, AA155882, AI686448, AI310229, AW380706, AW380712, AW368882, AW379646, AW380705, AI218469, AI363275, AW379653, AW379647, AF135183, and AB006533.
HCRPZ84	186	1130816	1 - 1953	15 - 1967	Z20545, AA099688, AI718277, AI535926, AI806204, AI922705, AW189584, Z20083, AA134958, AW152541, AC007750, I50897, A74554, and A74468.
HCWTR54	187	1192287	1 - 370	15 - 384	AI302350, AW275432, AI249688, AA458534, AA593471, AA610255, AW167154, AI002261, AI590476, T94116, AA569202, AI598003, AI832865, F36273, AA516207, AA664604, AA347927, AA579278, AA548029, AW166611, AL039187, AA346586, AI962050, AA508809, AA347930, AI284640, AI340832, AW021917, AI014378, AI863399, AA627154, AA728937, H96518, AA347114, AI244356, AA843450, AI305258, AI859280, AA167741, AA350859, AL133950, AA574353, AA862243, AI613465, AA804925, AA527209, AW238495, AW274182, AI038304, AI581486, AA515631, AI679413, AI282832, AA574442, AI623805, AL041706, AW020198, AA488620, AI653515, AI683079, AI754567, AC005844, M87914, AL117337, AP000512, AF205588, S42653, AC006064, AC005746, AC000353, AC005531, AC003041, AC004895, AF042090, AC008119, Z84469, AC007225, AC006512, AC005755, AL008635, Z84467, AC007226, AC005251, AP000248, AL034418, AL021937, AC005089, AF124523, AC000075, AB020863, AC003101, I34294, AC007388, AC003030, AC005332, AC005971, AL122003, AC005914, AC005288, AP000402, AC004797, AC005519, AC004685, AL034417, AC000026, AC005740, AC007551, AC006449, U47924, AL033376, AC004883, AC005409, AC002059, AC005907, AC002470, AC004019, AC007686, AC004686, AL049780, AL022476, AC005512, AC005200, AC005664, AL031597,

| | | | | | AC005011, AL034548, AC000015, AC005722, AC003668, AL035089, AP000210, AP000132, AC003688, AC007011, Z98200, AC004531, AC009516, AF045555, AP000120, AP000167, AP000052, AC006597, D84394, AC006547, Z83840, AL031315, AP000961, AC005920, AC002094, AL096701, Z68756, AF029308, AP000009, AC004849, AL031431, AC002504, AF053356, AC008372, AF141309, AC007546, AC007207, AC005829, AL136295, AC004841, AC007450, AJ003147, AC007204, AC002477, AC000041, AL049872, AC006121, AP000553, AC008040, AC004234, AC007055, AP000703, AC004072, AP000500, AL008629, AC006050, U02068, AC004854, AC005697, AP000505, Z98749, I51997, Z69917, AC004687, AL031846, AP000349, AL035683, U96629, AC006442, AF196779, AL109984, AC009498, AC004983, AC010582, AC006160, AL035455, AL049869, AC000082, AL031078, U50871, AL050318, AC007390, AC005919, AP000116, AL034420, Z95152, AC004079, AL109799, Z84487, AP000114, AP000046, AC006530, AL024498, AL035542, AL133353, AC005037, AL022316, AC002394, AC004409, AC004922, AP000134, AP000212, AC005940, AC004383, AC002551, AC007666, AL079295, AC005368, AC005412, AL035681, AL117354, AC005399, AP000466, AB016897, AL021807, D87675, AL021394, AL121595, AC003964, AC005184, AC008134, AL021578, AC004913, AC006468, AC007227, AP000150, AL020997, AL035587, AC002418, AP000502, AF134726, AC005274, AC004816, AC005484, AC006312, AC004150, AG004905, AC004859, AC004821, AC006249, AC004858, AC006241, AC008125, AC006581, Z82206, AC007021, AP000031, Z99128, U73023, AC005230, AL049697, AB026899, AC005261, AP000252, AC007406, AC006101, AL031121, AC004477, AL022320, AC005899, AL008719, AC005207, AL034555, AP000962, AL031311, AC005498, AC002299, AC000120, AC005071, AC004386, AC007934, AC002319, AP000350, and AC006388. |
| HDPBB41 | 188 | 1195686 | 1 - 2874 | 15 - 2888 | AA629318, AI760806, AA206978, AL043066, AW166212, AA425460, |

					AI917308, AI056245, AL048641, AA586628, AI692709, AI831911, AA425277, AA405884, AI799931, AI767009, AI244624, AA693749, AI630165, AI373907, AI864959, AA653268, AW271989, AI474047, AA653267, AW450325, C21113, AI470797, AA405193, AA256993, AW403223, AI568903, C06086, AI431951, AW377675, AA313069, T95499, AA776533, AA256994, AA355278, AI758787, H89698, AW365130, AA374679, AW362584, AA356553, T95500, AI630633, AA233991, AI673443, AW391367, AA236033, AA653160, AB018344, AF106680, U25746, AC005372, AC001048, AC001527, AC001049, AC001047, AW516386, AW589717, and AW770130.
HEOPI32	189	907903	1 - 658	15 - 672	
HFSAG03	190	1151479	1 - 1095	15 - 1109	AI608909, AA652060, AA342084, AI298660, AC009247, AC003101, Z73359, AC000379, AC005670, U91318, AC007021, AP000557, AL049776, AC005919, AC002312, AL031602, AC009516, AB020865, AC005531, AC007151, AC007637, AP000109, AP000041, AL050318, AC007314, and AL133245.
HFXCI24	191	1182719	1 - 667	15 - 681	
HFXHJ89	192	907938	1 - 950	15 - 964	AA772229, AI032872, and AL031667.
HHPTC55	193	1106390	1 - 663	15 - 677	AL134779, AW403151, AB018352, and AW594431.
HJBBP54	194	1195070	1 - 563	15 - 577	AA356633, and AL023803.
HKAHB56	195	1162649	1 - 1964	15 - 1978	AI583960, AI952045, AA151667, AI983595, AA843917, AA026663, AW166428, AI308225, W44522, AI809227, AI277831, AW297288, AA464999, AA399149, AA455279, AA010423, W44521, AI128699, AA010395, AA608908, AI905004, AA639536, AA371294, AI648709, AA026711, AI207083, AI905003, and AC003104.
HLDCI35	196	1151490	1 - 773	15 - 787	AI760643, T78476, AI913746, N74639, AW450191, AI672811, R99475, AW444631, T71577, N58369, T40936, T91004, T78557, R99474, R28738, R93411, T81723, T84581, AW300983, T82031, and AF209192.
HMCBU79	197	1165318	1 - 1047	15 - 1061	AA976002, AA613500, AA873354, AI701066, AI802911, AI598264, AI803092, AI337726, AW374991, AW375000, AA620998, N47591, AW176570, T96959, AA889162, AW449691, AI401363, N45464, AI015106, T08650, T91835, AA970196, AA810602, AA384574, AI672896, AA905988,

					AI827760, AI797084, AA320491, AI127411, AI817660, AI004566, C02558, AA810594, AA703440, AI497709, AI435494; AI702289, AA460950, AI940414, T97071, T91922, T07472, AL122076, AF082179, AF173643, and AF088884.
HNTRV07	198	1199546	1 - 2378	15 - 2392	AW027788, AW003101, AW291430, AW029391, AI274820, AI809706, AI916375, AA640185, AI916363, AI146505, AI884408, AI277493, N26244, AA609635, AI655416, Z43702, AW051663, D60919, AI289588, Z39761, AA758072, and AA598992.
HODEX10	199	1104108	1 - 479	15 - 493	
HOGAQ10	200	1222600	1 - 2476	15 - 2490	AI653115, AI281473, AI377912, AA815186, AI280027, AA491250, AA197295, W24286, N95450, AI825293, AA832432, AA628231, W25169, N93682, D59275, C14389, D80164, D80195, D59467, D80227, D59502, D58283, D50979, D59859, D80022, D80166, D80043, C15076, D51423, D59619, C14331, D80210, D51799, D80391, D80240, D80253, D59787, D81030, D80269, D59610, D80038, D80193, D80188, D80212, D80196, AA305409, D80219, D59927, D57483, D80378, D80366, AA305578, D59889, D50995, D80241, D80045, D80024, T03269, C14429, D80251, D51060, AW178893, AW177440, D51022, C75259, AA514188, D81026, C14014, D80248, AW179328, AW378532, D51250, D80522, AW178775, AW179332, AW360811, AA514186, D80133, D80134, D52291, AW369651, AW375405, AW178762, AW352158, D58253, AW177501, AW177511, AW178906, AW179329, AW377671, F13647, D59695, AW366296, C05695, AW360844, AW360817, D80268, AW352117, D80439, AW375406, D80247, AW378534, AW377672, AW179023, AW178905, AW177731, AI910186, D80302, D80168, AW176467, D58246, AW179020, D51103, D80132, C14227, AW352171, AW179004, AW377676, AW352170, AI905856, AW178907, AW178908, AW179019, AW179024, D81111, AW360834, C14298, D80064, AW177722, D59373, AW177505, AW360841, D80157, AW378540, AW178909, AW177456, C14407, AW178980, AW177733, AW378528, AW178754, D51759, AW179018, AW179009, AW179012, AW178914, AW178911, AW378525, Z21582, C06015, T48593, T11417, AW178983, D51097,

					AW178774, AW378543, AW177728, AW352163, AW367967, D59653, AI557751, D59503, AW178986, D45260, AW178781, AW352174, AW177723, AA809122, D59317, AW352120, AW367950, H67854, D80258, C03092, AI535850, AI525923, H67866, AI557774, D58101, D59627, T03116, AW177734, AI525917, AW378533, D80014, AI535686, C14973, C14344, D51221, AI525227, D59474, D59551, D51213, D60010, AI525920, U25691, AJ132110, A84916, A62300, A62298, AR018138, A67220, AB028859, AR008278, AF058696, X67155, Y17188, D26022, A25909, D89785, A78862, D34614, D88547, Y12724, X82626, A82595, I82448, AR060385, AR025207, AB002449, A94995, I50126, I50132, I50128, I50133, AR008443, AR016808, AR066488, AR016514, AR060138, A45456, AB012117, A26615, AR052274, Y09669, A43192, A43190, AR038669, AR066487, I14842, A30438, A85396, AR066482, A44171, X68127, A85477, AR054175, I19525, A86792, D50010, Y17187, X93549, A63261, X64588, AR008277, AR008281, AR008408, AR066490, AR062872, A70867, I18367, AR016691, AR016690, U46128, I79511, D88507, D13509, AR060133, A64136, A68321, AF123263, AR032065, AR060382, AR008382, X93535, and AW664301.
HOSBW20	201	985056	1 - 913	15 - 927	H08004, R24580, AA291098, Z42372, and AA625285.
HRADL60	202	1151310	1 - 2818	15 - 2832	AW384788, AI675355, AA744751, AA744748, AA845503, AW043626, AW299842, AI452733, AI366887, AI034444, AI040175, AA521456, AI332420, AI039015, AI016103, AI692961, AW052078, AI651418, AI690586, AI091379, AI377503, AI084606, AW028307, AI625000, AI039629, AI167271, AA281485, AI658975, AI916884, AI418865, AI742911, AW086446, AI479568, AI692998, AA426143, N28524, AA160283, T27255, AA825823, AI204190, AA160282, AW384791, AA505179, AA410336, AI963863, AA424923, AA406093, AI890952, AI693422, AA425608, AI240433, AW080190, AI540568, AI373898, AI948971, AI269392, AI753161, AW021363, AA304886, AI760067, AA806472, AA846492, AI183665, N66960, AA099378, AL038540, AW449066, AL038539, AA662805, AA364218, AI061210, C03020, AA628116,

					AA451957, AI362354, AI022892, AA463745, AA824252, AA099702, AA811719, AI472811, R97738, AI923603, AA811568, AA992984, AW135728, AI088053, AA897107, R96808, T34664, R86031, H56147, AA009984, R74232, R75933, AI270739, AI942304, AA281712, AA304597, AW170438, AA827323, AI699077, AI188894, R74233, H72118, AA405783, AI811853, AA009985, H72221, AI288189, AI863806, AW198063, H99845, AA299273, AA443927, AA480301, R30666, R85985, AA444106, AA455561, AA405718, AA740762, AC005702, AC004167, AW511602, AW516414, AW627782, and AW631098.
HSGSC29	203	1150837	1 - 865	15 - 879	AI953659, AI050796, AW140027, AA478726, AI283360, AI608921, AA700713, AA700770, AA479430, AI927858, R44554, C01756, W86092, and AL036771.
HTEDX38	204	1106208	1 - 1871	15 - 1885	AL044363, AA447302, AI634406, AW000894, AW401349, AW236978, AI467963, AW055309, AW014521, AI362163, AI191474, AI277716, AI963837, AI092327, AI191249, AA434020, AI339113, AA437386, AI831293, AI221256, AA747576, AA461593, AA250939, AI024342, AI828851, AA306239, AI091758, AI913089, AW016713, AA460305, AI203023, AA742597, AI371510, AW388368, AA303940, AA860160, AA250963, AA731204, AI913691, AF106019, AF171063, AL133598, AL049557, and AL022098.
HTEJE15	205	1102531	1 - 663	15 - 677	AI217144, AA399611, AA398976, AI025074, AA758412, AW449170, AI953070, AI337133, AI654417, AA608877, AI969018, AA400066, AA401568, AL137462, S75275, and D14859.
HTOES03	206	1150877	1 - 1173	15 - 1187	AI816756, AI741299, AI804293, AW452955, AA455255, AA885819, AI799017, AA837172, AA836405, AI274017, AA748579, AA668887, AI439057, AA731850, AA720637, AA862905, AI263559, AI084245, AI380616, AW293212, AW024488, AW027530, AA934381, AW378865, and AA741276.
HTOHS18	207	1193057	1 - 1653	15 - 1667	AA570331, AA099587, AI248685, AA099648, AI445434, AI701243, AA424948, AW337329, AA688394, AI288907, AA234304, AI311769, AA234394, AA327735, AA424873, AW261878, AA424749, AA424947, AI474220, AI272273, and Y16709.

HWAAX38	208	943936	1 - 1302	15 - 1316	AA258959, AA255426, N30506, W03086, AA255592, AA296423, W24603, AA249056, AI968991, C04062, AI735341, and AA805676.
HMSFN70	209	1210794	1 - 2788	15 - 2802	AI302253, AI681108, AA401235, AI126248, AI656239, AA918740, AI937425, AI741021, AA843517, AI500172, AI421803, AW007340, AA451624, AI569817, AW026832, AW390547, AA404277, N50110, AI092263, AA766293, AA291461, AI341759, AA284449, AA450220, AI097356, AI911900, AI818988, AI082624, AW137544, AW044424, AA235465, AA292529, AI057584, AA843791, AA127047, H45298, N75571, AA912550, AA992665, AI225107, AI244651, R71076, AW370933, R81819, AA045627, AA688282, AA045626, AI564927, W05555, AA287017, AI783626, AA976903, W48565, AA429567, W48566, H53366, H27854, AA769010, AW378050, AA329369, AI282052, AW150712, AW149953, H45374, H53418, AI952616, AI871241, AA125789, AI457989, AW389252, C05676, AI971909, AI369550, AA594405, AI127975, AW473702, AW594229, and AW772388.
HUSGB93	210	1224029	1 - 971	15 - 985	AW406527, H97426, AA643182, AW276894, W44834, AI806904, AI128324, AA809131, AA832235, R57989, AA830032, AF125042, AJ249339, and AJ000347.
HELHL56	211	1164004	1 - 1767	15 - 1781	AL134932, AI424948, AA278217, AI624314, AA160640, M78353, AI084686, R21778, AA760801, AA300647, AW362782, AA278663, and AA994437.
HOENY85	212	1191756	1 - 1532	15 - 1546	AA160640, AA278217, AL134932, R21778, AA300647, and AA994437.
HTEHI14	213	1102680	1 - 535	15 - 549	AI656480, D59502, D80195, D51799, C14389, D80164, D80038, D59467, C15076, D59275, D80227, D80269, D80022, D80166, D58283, D80378, D80193, D59619, D59859, D80210, D80391, D80240, C14331, D59787, D51423, D80253, D80043, D81030, D81026, AA305578, D80212, D80196, D80248, D50979, D80219, D80366, AA514188, D80188, D59927, AA305409, D57483, D80241, D59610, D51022, D50995, D59889, D80045, D80024, D80133, AW177440, D80522, T03269, AW178893, D51060, C14429, AW360811, AA514186, C14014, D80251, AW377671, AW179328, D80302, AW375405, D80439, C75259, D80247, AW378532, D80268, AW177501, AW177511, AW366296, AW360844, AW360817, AW375406,

					AW378534, AW179332, C05695, AW377672, AW179023, AW178905, A84916, AJ132110, A62300, A62298, AR018138, AR008278, AF058696, AB028859, A82595, Y12724, AR060385, X67155, Y17188, D26022, A25909, AB002449, A67220, D89785, A78862, D34614, D88547, A94995, AR008443, I50126, I50132, I50128, I50133, X82626, AR066488, AR060138, I82448, AR016514, A45456, A26615, AR052274, AR016808, I14842, AR025207, Y09669, A43192, A43190, AR038669, AR066487, AR054175, A30438, Y17187, A63261, D50010, AR008277, AR008281, AR062872, A70867, I18367, AR008408, AR016691, AR016690, U46128, AB012117, A64136, A68321, I79511, AR060133, D13509, X68127, AF123263, and AR032065.
HETDT70	214	1228235	1 - 586	15 - 600	AA156832, T96213, AA299371, AA321353, AI810397, E16580, AF035268, AF035269, and U37591.
HPIAT34	215	936262	1 - 562	15 - 576	AA156832, AI810397, AA299371, T96213, U37591, E16580, AF035268, and AF035269.
HDPPO41	216	1204324	1 - 3071	15 - 3085	AI139882, AW372581, AA442710, AA877904, AW372587, AI770174, AI539441, AA625121, AA490194, AI633309, AI361039, AA773718, AI336242, AA913955, AW082708, AL044683, AA625245, AW372585, AA127749, AW015838, AI684313, AI962383, R25792, AI951420, AI432514, AI435855, AA229604, AI423475, AA233020, AI431531, T70290, AA804544, H29402, AA826095, T87869, H11826, H07001, AA082620, AA156095, AA229914, T17472, H19387, AI287493, T66752, AI094976, C04205, AA337227, T66751, T87958, AA235237, AA101130, AI027567, T17473, AI243842, AI568315, H15839, AA853458, T28950, R12843, H11749, AW269644, AA783031, AI654882, AI690921, AI378497, AA934605, AA853459, T79599, H68911, AI218090, T79683, AA496055, C03988, R46791, AA887922, AW169886, AI869101, AI586994, AA994515, T95521, R20752, AA332592, AA229696, T25984, AA156521, AI370468, H16148, AA883256, T80865, AI359674, AA844103, AA771780, M55905, AF116275, AF116274, AI684161, and AW589736.
HMSHI83	217	1204709	1 - 2376	15 - 2390	AA442710, AW372581, AA877904, AW372587, AI770174, AI539441, AA625121, AA490194, AI633309, AI361039, AA773718, AA913955,

					AI336242, AW082708, AL044683, AA625245, AW372585, AA127749, AW015838, AI962383, R25792, AI435855, AA229604, AI423475, AA233020, AI431531, T70290, H29402, AI684313, AI951420, AI432514, H11826, H07001, AA229914, H19387, AA804544, T66752, AI287493, AA826095, AI094976, C04205, T87869, AA337227, T87958, AA156095, AA235237, T17472, AI027567, T17473, AI568315, AI243842, AA082620, H15839, AA853458, T66751, H11749, T28950, R12843, AA101130, AW269644, AA783031, AI654882, AI690921, AI378497, AA934605, AI218090, T79683, AA496055, C03988, AA887922, AW169886, AI869101, AA994515, T95521, T79599, H68911, T25984, R46791, AI586994, H16148, R20752, AA229696, AA883256, AA853459, AI370468, AA156521, AI139882, T80865, AA332592, AI359674, AA844103, M55905, and AF116275.
HTEPM45	218	952389	1 - 1430	15 - 1444	AA442710, AA490194, AA625121, AA773718, AA625245, R25792, AA229604, AA233020, T70290, H29402, AW372581, AW372587, H07001, AA229914, T66752, C04205, T87958, AW372585, AA235237, T17473, T28950, R12843, AI770174, H11826, AA877904, T79683, AA337227, H19387, C03988, AI539441, AW082708, AI361039, AL044683, AI336242, AA913955, T95521, AA127749, AI962383, H16148, AI435855, T80865, AI633309, AI094976, and M55905.
HE8OV13	219	1228507	1 - 1894	15 - 1908	AW361145, AA159854, AW385193, AI905632, W20422, AW371259, Z43294, AA161059, R17090, R07447, AA007287, N54761, AA403066, AA161002, AA416825, R62201, F07754, F02724, W31874, Z40838, AA004273, and AL133017.
HELGU27	220	1011928	1 - 823	15 - 837	AA853506, AW374728, AB018270, and X81597.
HHEDC90	221	1226157	1 - 3386	15 - 3400	AI693688, AI089291, AI492178, AI239859, AA932955, AA651942, AI057017, AW205176, AA806301, AI911826, AW205734, AI439640, AI379127, AI493662, AW207182, AW270056, AW340433, AA825776, AA824566, AI239585, AA310652, AA256500, AA235097, AA291012, H58752, AA078664, D31147, D31363, D31268, AA911804, AA256924, AI243382, AA578487, AA504191, AA504190, AL119457, AL119324, AL042544, AL119399, AL134524, AL119484,

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HNBRB59	222	685902	1 - 400	15 - 414	AA640104, Z82215, M69180, and M81105.
HNNBI16	223	965414	1 - 338	15 - 352	AW392670, AL119443, AW363220, AW384394, AW372827, AL119483, AL119319, AL119497, U46347, AL119457, U46350, U46351, U46349, AL119324, Z99396, AL119484, AL119363, AL119391, AL119444, AL119355, U46346, U46341, AL119341, AL119335, AL119399, AL119396, AL134533, AL119439, AL119522, AL134518, AL037205, U46345, AL119496, AL119418, AL042542, AL134527, AL042614, AL134538, AL042970, AL042965, AL134532, AL042450, AL042975, AL042544, AL043019, AL042995, AL042984, AL043029, AL119488, AL042551, AL043003, AL119464, X99638, U96723, U96726, AB026436, AR054110, A81671, AR069079, AR060234, and AR066494.
HUJCL61	224	1223496	1 - 3318	15 - 3332	AI693688, AI089291, AI492178, AI239859, AA932955, AA651942, AI057017, AW205176, AA806301, AI911826, AI439640, AW205734, AI379127, AI493662, AW340433, AW207182, AW270056, AA825776, AA824566, AI239585, AA310652, AA256500, AA235097, AA291012, H58752, AA078664, D31147, AA911804, D31363, D31268, AI243382, AW068842, AA504191, AA256924, AA504190, AA578487, AI863184, AA573896, AA595932, AI623201, AI679018, F34677, AW411320, X99638, U96723, U96726, and AF077051.
HWLRC68	225	1089187	1 - 1346	15 - 1360	Z99396, AW392670, AW372827, AL119484, AL119497, AW384394, AW363220, AL119443, U46341, AL119396, AL119457, AL119483, AL119319, AL119391, AL119335,

					AL119355, AL119324, AL119363, AL119341, AL134920, AL119444, AL119522, U46349, AL119418, U46351, AL119496, AL042965, AL119439, U46350, U46347, U46346, AL134524, AL134533, AL037205, AL134528, AL042896, AL134531, AL134532, AL119399, AI142132, U46345, AL134538, AL036924, AI142139, AL036767, AL037094, AL036196, AL037077, AL037082, AL036191, U55042, AJ249706, AF184153, A81671, AR066494, AR060234, AR054110, AB026436, and AR069079.
HFXFH42	226	1228147	1 - 994	15 - 1008	AW183170, AW058499, AI476139, AA938182, AA058593, AI362085, AA663645, AI379303, AI280062, Z39588, H83739, AI220755, R37678, AW016870, AA127866, R43565, AI783634, H83883, AI572222, AW015468, AI079104, AA127818, and AW206436.
HEQAN73	227	958912	1 - 1499	15 - 1513	AI979251, AI796919, AI741732, AI435416, AI805174, AI392824, AI889011, AW119231, AI949681, AA044214, AI341056, AW195863, AI803333, AA044084, AW104400, AI861829, AA503851, N64645, AI625405, AI376293, AA570142, AA830997, AA897774, AA748752, AI243362, AI302558, N80077, AI928246, AI566182, AI222093, AI913224, AI743535, F12040, AI709094, AI968331, AW197901, R60491, AW183301, R60483, R60484, R48952, AA365086, N63094, R34414, R60492, F09684, AA903744, and AC008012.
HSLFS31	228	1106294	1 - 594	15 - 608	
HELGK56	229	1103702	1 - 625	15 - 639	D80132, D80134, D58253, AW367967, AW177440, AI905856, AW366296, AW178893, AW375405, AW377671, T03269, AW177501, AW177511, AW352117, C14389, AW179328, AW360811, AA305409, D58283, D59859, D80022, C14331, D80166, D80195, D80193, D59927, D59467, D51423, D59619, D80210, D51799, D80391, D80164, D59275, D80240, D80253, D80043, D59787, D80227, D59502, AW378532, D81030, D80248, D80269, D80212, D80366, D80196, D80188, D80219, D51097, AW360844, AW360817, AA305578, D80038, C15076, D59610, C14429, D57483, D51022, D50979, D50995, D81026, AW375406, AW378534, D59889, AW179332, AW178762, AW377672, AW179023, AW178905, D80522, AW352170, D80024, AW177731, AA514188, AW352158, AW177723, AW178983, D80378, AW178906,

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					AW178775, D51060, D80133, AW179020, AW377676, C14014, AW352171, AW178980, AW178907, AW178908, D80045, AW179019, AW179024, D80251, AA514186, AW177505, AW178909, AW177456, AW179004, AW179329, AW178911, AW177733, AW378528, AW178754, C75368, AW179018, AW352174, D80268, AW176467, D80302, C75259, AI535850, AW178914, AW178774, AW179011, I18367, AR066490, Y12724, X82626, A84916, A67220, D89785, A62300, A62298, Y17188, A78862, D34614, D26022, D88547, AJ132110, AR018138, AR008278, X67155, AF058696, A25909, AR008443, AB012117, AR025207, AB028859, A94995, A85396, D13509, D88507, AR066482, A44171, A85477, I19525, A86792, X93549, and U79457.
HAMFW05	230	957586	1 - 1034	15 - 1048	AC005594, AC005594, and AC005594.
HTEDG81	231	1193054	1 - 1179	15 - 1193	AI190605, AW082323, AA356219, AI208433, AI648684, AI539153, AI521012, AW302965, AI921248, AL079963, AI571909, AL119863, AW162189, AL038445, AI872910, AL043975, AA640779, AI537677, AL045500, AW051258, AI619502, AI677796, AI632408, AI802542, AI922901, AI569583, AI886753, AI269862, AI273048, AW026882, AI620284, AI433157, AI702073, AI358701, AI627988, AL121014, AW268251, AI620639, AW161579, AW403717, AL036274, AI783504, AW268220, AI499285, AI446373, AL036403, AI254727, AI670009, AI343059, AA572758, AI309401, AL041772, AI349933, AA427700, AI590120, AA287231, AI554245, AL048656, AW238730, AL036901, AW148536, AI312428, AW074993, AI349614, AI569328, AI133489, AI343112, AI349937, AI340603, AI439717, AI815855, AI349598, AI497733, AL036631, AI284131, AW023590, AW088134, AI312152, AI345735, AI269205, AW075084, AA494167, AI468872, AI340519, AI859464, AL120853, AW105601, AW088903, AL036980, AI862144, AW081255, X61970, I48978, I89947, A08916, AL110225, AF113677, A08910, A08913, AL137557, I48979, A58524, A58523, E07108, X82434, AL133080, AL133640, AL096744, A08909, AF090903, Y16645, I89931, AL137459, AF146568, I49625, AF090896, AL133560, AL137527,

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| HAMGO24 | 232 | 943287 | 1 - 964 | 15 - 978 | AA528169, AA877468, AA730240, and |

					AL137348.
HMWBH91	233	1193044	1 - 1767	15 - 1781	AI131535, AA814807, AI828032, AW272219, AI139995, AA418678, AA521385, AI478439, AW051829, AA643133, AI476489, AI351672, AI272800, AI273642, AI650882, AI307118, N42421, N95005, AI093305, AI240039, AA242868, AA418690, AA724431, W01661, AA460397, AA917597, AI371335, AA479389, AA974690, AI985154, C17104, AI379324, AI918673, T24038, T24037, AA720622, R55123, AA757357, AI355016, N33448, AA460334, AA479291, AA496828, AA496871, R55171, AI475251, AA568574, AA243258, F13637, AL135071, T36250, AA883124, AA352697, and AW050395.
HOECH19	234	965639	1 - 1128	15 - 1142	W30719, AI015967, AI860350, AI341648, AI200828, AA621573, AA452652, C03793, AA432011, AI638236, AI217938, AA405995, AA447468, AI378270, AI888183, W56659, W56551, AA448474, C05350, AW392861, C03208, AA761808, AI377879, T64861, AA908986, C03729, AI658858, F12348, AA285301, AA405744, AA749175, N94970, N30595, N99058, AI628397, AA446662, AI240555, AA992373, AA514257, AW104676, AA907567, AA450024, R18069, AA496049, AI970903, AI680576, F09967, R42965, AA826528, T72602, AA845274, AI554608, AI973020, AI499447, AA044637, N41837, AA044700, AA477681, W19571, AA337749, N93448, AI434751, D79950, AF151833, AF120324, and AF120323.
HSRAA80	235	1121919	1 - 504	15 - 518	AC006504, AC007788, AC006118, AL020995, and AL031393.
HHEDF50	236	1174682	1 - 511	15 - 525	Y17793.
HHEMK34	237	974395	1 - 403	15 - 417	
HMAGK69	238	1105451	1 - 604	15 - 618	
HNGNW52	239	1132300	1 - 925	15 - 939	
H6EDK67	240	974775	1 - 834	15 - 848	AI740538, AI991063, AI816235, AA989369, AI816180, AI568003, AI879047, AW337566, AI815804, AI401701, AA992003, AA887219, AA314893, AI193891, AA991962, AI870871, AI129251, AA938974, AI937894, AI816312, AA417644, AA972057, AI816219, AA411565, AA984034, AI815497, AI493664, AA419548, AA410528, AA985561, AI969199, AA234347, AA523589, AI201484, AA738149, AA639075, AA714943, AA661984, AW371214, AI373806, D11909, AI698157, AA308942, AI220909, C21419, AI698146, AA165132, AA054834, AI420464, AA644345, T81127,

					AI933854, AI015791, AW104613, AI784278, AA299888, AI014584, T81080, J05069, and AB022714.
HWBCS43	241	1151532	1 - 1357	15 - 1371	AI357653, AI608948, AI984870, AW166141, AA551581, AW026439, AA778606, AI188784, AA776852, AI767102, AA608990, AA614053, AW304727, AA621876, AI401209, AI587455, AI038330, AI859236, AW410945, AW410946, AI004157, AI580925, AI186081, AA595384, AA745049, H98063, AI457441, AI624650, AA527667, AI538446, AA151795, AA044237, AI201917, AA911095, AI337568, AI494401, AI127736, AW021177, AA722805, N35226, AI335664, AA676409, N48676, AA465269, AA524861, AA564716, AA465156, AA082741, AA837389, AW001100, AI355123, AI088852, AI582279, AI274687, AI042077, N31207, N72003, T60404, AI222493, AA468797, W25525, AA432310, AA259143, W92210, T59854, AL038933, W79807, T52903, W92943, AA631684, AI580813, AI687292, AA307699, AA627507, AI051931, AI352208, AA593571, AA653967, AI141158, AA865059, AA665332, AW013811, W92942, AI253542, W69347, AW362490, W69348, AA459913, T74935, R11105, AA804679, AA312627, N44890, AA026643, AA525811, W61261, AA551709, AA442963, T60549, W19343, AA308511, R92670, AA151792, D11941, N53441, F29583, AI908209, AI265903, T52902, AA354120, AI880297, R11051, AA740557, AA298767, AA341112, AA765092, AW439036, T60130, AW379667, AA905842, AI283673, AW379599, AA665413, AA298766, AA742432, AA887844, H02351, T60248, AA353967, W61262, T59910, AA044318, AA026101, AA640804, N45530, H02253, N89468, N99438, T84807, AA034108, AA149577, N36435, AA318267, N85136, AA918517, AA888529, AL134449, AA470866, T59787, AI625142, AF061737, AF221669, AB025405, J05466, AF108945, AF090315, and L11319.
HCE3H71	242	961681	1 - 2035	15 - 2049	AI638508, AW139057, AI654790, AW149807, AI419465, AI569283, R90888, H51217, H29244, R85125, H29245, AA488106, H05353, AI480182, AI500178, F11386, AI873131, AI499775, AI458144, R44423, H05303, H51247, R14779, F05862, F09051, AA338672, R51725, R51648, R42549, R19635, R35934, F07470, Z40525, R49451, R85080, F02105,

					W22746, D29763, D64009, and D64010.
HOFMS43	243	947973	1 - 360	15 - 374	
HOVCO14	244	947999	1 - 580	15 - 594	AI701529, AA994711, AI192036, and AC007.198.
HTOBE75	245	1161571	1 - 1840	15 - 1854	AW192827, AA595431, AI251121, AI923335, AI284016, H30141, T70540, T90549, AI432106, AA953436, H27466, R50714, R50249, AI540363, T70809, AI659868, AW370667, AI678688, AI802240, AW004886, AW080379, AI352274, AI254727, AI537677, AI917963, AI491710, AW163823, AI569328, AI249962, AI570966, AI919593, AW088903, AW151714, AW129230, AI539771, AI873638, AI434242, AI801793, AI697324, AI589428, AW162194, AI888621, AI918449, AI587121, AW168451, AW089006, AI812015, AI687287, AI581033, AI590043, AL110306, AI929108, AL138386, AI587606, AI468872, AI699011, AI446809, AI473451, AW080374, AI860783, AW081255, AI859983, AI621341, AW161156, AL047100, AI866608, AW024564, AI352184, AI445620, AL041220, AI367210, AI355008, AW305233, AI499391, AI590601, AW191844, AW085786, AW104641, AI953803, AL036638, AI682743, AI679504, AI954422, AW132001, AA806719, AI569367, AI933903, AI859991, AW021373, AI698401, AW409775, AI567993, AI890574, AI565970, AI624154, AI932949, AI932458, AL036265, AI452876, AI431962, AI636619, AI628217, AA580663, AI338212, AA572758, AI538647, AI610667, AI953880, AI805688, AI619485, AL042382, AI357599, AI687424, AL079728, AI345677, AI889306, AI590686, AL119863, AI922676, AI368816, AI828412, AW088899, AW151136, AI540674, AI539781, AW083778, AW162071, AI683128, AI221035, AI889764, AI364788, AI345688, AI560545, AL045349, AI933992, AI623941, AI540754, AI963040, AI590020, AW103012, AI891102, N57346, AI432736, AL120819, AI288050, AW074172, AI758528, AW059713, AI365256, AI859511, AW193026, AI805769, AI282743, AI280661, AI472536, AW169790, AW193203, AW087954, AI537617, AI680498, AI623736, AI634305, AI919345, AW130863, AI922577, AW088134,

					AI249877, AI874151, AI471361, AI538342, AI475817, AI811344, AI539800, AI922216, AI805638, AI291601, AI366549, AI866082, AI636719, AI539153, AI269988, AI273048, AI561356, AW192461, W60514, AL040694, AI620093, AI863082, AI677797, AW198075, AI611743, AI567302, N81195, AI619691, AW083804, AI678446, AA830821, N98606, AI696626, AI589993, AW149876, AW079432, AI625467, AI886532, AA070889, AW265004, AI886055, AI648458, AI911933, AW082600, AW089840, AW075418, AI359497, AW169001, AI591080, AL037013, AW132104, AI224027, AW051088, AI684021, AL040241, AI244380, AI249946, AW191892, AI783792, AI669639, AI819202, AI922901, AW022584, AI537187, AL041734, AI590021, AL048871, AI521476, AI625701, AI590575, AI312428, AI613471, AI624604, AW193139, AI929564, AW172878, AI539707, AI801322, AW079045, AI634251, AI673785, AI446124, AI922618, AI076761, I36305, AL022146, Z99572, M87861, M72332, M60235, L39075, M60230, M60228, M60231, M60229, M60232, M60227, I48978, AL137574, U87620, I48979, A18777, AF031147, AF111849, I03321, AF017790, AL137533, A12297, A08910, A08909, AF065135, X62580, AL122098, AL137660, A08916, AF177401, AR034821, AL050277, I89947, A08913, AJ003118, AL080137, I00734, AR038854, E05822, E00617, E00717, E00778, AL133113, X98834, I68732, E12747, AL049464, AB019565, A21103, AL049339, AL133080, AF067790, Y11254, A07647, AL096744, S68736, AL137459, AR059958, AF026124, AF090886, E07108, AF205861, AF113013, AF102578, I89931, AJ000937, AL133640, A08912, U88966, AF111112, U75932, I49625, S36676, X80340, AF118090, Z37987, AL133568, AF146568, AL137705, X96540, A18788, AL080060, AF119337, AL137283, U92068, A08908, AL133665, I09499, A45787, AL137294, AL050138, AL080124, I89934, AF012536, X76228, X79812, AL050393, AL137300, AL133104, X72387, A77033, A77035, AF104032, AF078844, AF162270, AF113689, AL117463, A65340, U67958, AL080159, AR000496, U39656, AF017152, U96683, AF061795, AF151685, AL133016, AF125948, AL096720,

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HCMSL08	246	898203	1 - 1740	15 - 1754	AI141895, AI201842, AI351867, AA251985, AA197256, F20444, AA194198, AI800873, F36894, F26457, AA482914, AA197255, AA482932, F30374, F32249, F27719, F32998, F01019, F01208, F31596, F34858, F00856, F29622, AA194227, F29621, F36047, AA016148, F00201, AA178901, F34860, AA176342, F35465, AA252091, F21999, AA192776, AI023647, F34620, S73775, U93291, M15747, M22717, M22712, M20142, M22714, and M22713.
HDPBS64	247	846624	1 - 743	15 - 757	AA888874, AA992389, and AI767840.
HDTBR50	248	846630	1 - 453	15 - 467	
HTDAB17	249	890384	1 - 591	15 - 605	AW410520, Z21669, AA334183, AW376427, and AC011078.
HABAE22	250	1227053	1 - 1361	15 - 1375	AI630895, AW074246, AW074238, AI971879, AA573790, AI732281, AA775749, AI097431, AI133167, AW272212, AW007382, AI922522, AI476536, AA977131, AI313142, AI829488, AA156751, AI567504, AA707243, AI801581, AA196335, AA523100, AI800972, AI265896,

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					U67810, AF022813, Y12860, AW519276, and AW780114.
HE9MI70	251	1217048	1 - 1938	15 - 1952	AI337094, AW316631, W49570, AA700491, AA434168, AA480122, AI374954, AI368173, AI273067, C05075, AA249368, C04935, AI609285, R13198, AA834371, R13225, R40307, AA490857, AA348046, AA334032, AA683069, AW275432, AW069227, T47138, AI915081, AA682344, AA651639, AI634187, AA224860, AA019804, AA487226, H58354, AA528390, AA582746, AA219349, AI679871, AW023662, AI832009, AA721645, AI457313, AA630923, AC002036, AL023575, AC005089, AP000116, AL121655, AC004923, AC007792, AC006449, AC009044, AL035071, AC007666, AC005972, AL031681, AC004900, AC007225, AC000052, AL031864, AP000687, AC005884, AC004156, AL035587, AC005602, AC006271, AC002126, AC005837, AB015355, AC004019, AF069489, AC007421, AC002350, U91321, AL031291, AL050317, AC006581, AC003692, Z97055, AC003969, AD000092, AC005940, AC005568, Z85987, AC007160, AF196969, AC005696, Z86090, Z97876, AC016027, AC004927, AL020997, AP000689, AC008989, AP000113, AC016830, AP000688, Z98941, AC005722, AC002041, AC008101, AC008115, AL117330, AC004859, AC004815, AP000211, AC005082, AL021393, AF104455, AP000086, AC005907, AP000563, AL049569, AC002301, Z84466, AC005620, AL049697, AL031659, AL031984, AC007917, AC005844, AC005529, AC007437, AC007327, AC003962, AC006241, AC002544, AC002425, Z82205, AL078581, AC005488, AC004975, AC005527, AC007021, AC004596, AC004745, AL031283, AC004000, AP000045, AC004106, AF030453, AC005067, AJ246003, AP000133, AL031683, AL031595, AC008282, AC004253, AC002400, AL031733, U91325, Z99716, AC007011, AC008122, AC006120, AC005411, AC004750, U80017, AP000690, Z82182, AF024533, AL031729, AL022320, AL008729, AC005231, AC005088, AP000131, AP000209, AC006480, AC005235, AL035086, AP000510, AL133246, AC003982, AC005369, Z84480, AP000474, AB014077, AL031300,

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HHFDK15	252	1147850	1 - 2494	15 - 2508	AA102381, AI951899, AI703107, AI419880, AI912273, AI804850, AI887154, AA879129, AA864602, AI969931, AI167957, AA977051, AI243403, AA767639, AA905866, AA921946, AI633925, AI692307, AI016654, AA100863, AA476869, AA084508, AI148775, AI697677, T65447, AA081620, T65370, Z40406, F11740, AW015853, F09269, F09400, AA917724, AI220705, F04025, H17830, F11614, R67955, R66865, AI910366, AA626581, Z44504, AA091214, AI250518, D86980, and AC004816.
HOSNZ11	253	1162664	1 - 1338	15 - 1352	AW003991, AI148174, AI863291, AI057635, AI968770, H09402, AA971937, H09359, Z45655, AI359331, N59010, Z41327, H09342, H09418, N36601, and AC009320.
HTAEW05	254	1151514	1 - 1241	15 - 1255	AI765772, AI028132, AW182888, AI927120, AA825920, AA765784, AA761590, AA676756, AI282202, H55577, AI671077, AA984585, AA161319, AI671517, AA047045, AI739458, AA001398, AA601230, AA493931, AA579188, AL035659, AF188530, AB028954, AL133382, AC006312, AL009174, AL121769, AC007637, AC004687, AF060568, AC001234, AF001548, AC006512, AL022721, AP000300, AP000045, AP000113, AC004453, AC004463, AC002390, AC002492, AC002375, Z49258, AC004938, AC005244, AC012384, Z83843, Z84486, AC004030, U95090, AC008115, U47924, Z85987, AC004031, AC005158, AC005480, AC004638, AC004893, AL049709, AC004750,

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HTTKN45	255	1181807	1 - 1760	15 - 1774	AA307651, AA373934, AA354070, AA370119, AA301228, and AA355552.
HUSJN62	256	923146	1 - 1177	15 - 1191	AI630895, AW074246, AW074238,

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					AA427397, AA089853, AA129642, AI382400, AA243029, W24024, AA419189, AI557258, AI557602, AI541321, AI624543, AA715307, AA809974, AI541056, AA748353, AL121270, AA604073, AL045163, AF129085, AF039689, Z92544, AF129086, E12888, D44497, U67810, AF022813, and Y12860.
HTEIU92	257	1102681	1 - 550	15 - 564	
HAQMD86	258	1105267	1 - 2767	15 - 2781	AI636559, AW055061, AL079918, AI948517, AI767438, AW237050, AI762385, AW006663, AI391637, AI631872, AI824031, AI803349, AW006910, AA557263, AI817196, AI139327, AI039492, AI684981, AI269195, AI190930, AI554712, AI146637, AI689910, AA455233, W28613, AI290506, AI498042, AA243244, AI669277, R87161, AI245809, H06451, AI458528, AA465611, W86885, AA251480, N91558, N75191, AW204076, W22739, AL135648, N22308, AA243184, AA043090, W26402, R38563, AW369274, AI458648, AA548226, AW369304, AI221069, AW136042, H77665, AA576641, AA293619, AI284500, H78129, W86932, AI867551, R97939, AI127558, R75914, R60919, AA777582, AA853622, F10540, W22844, W19112, AA377671, R12305, H90831, AI473122, AI699758, AA043089, H78130, AI024109, H90779, T75147, R42400, AW058164, AI701015, AI469458, AI033341, AW014864, R77423, AI589658, R39490, R37236, AI696677, Z38489, R87162, F12941, H97820, H97821, R14677, AI818286, AI685907, AA765376, AA332232, AW085853, AA331828, AI951199, AA526471, C20938, AI341357, AA251358, AI739322, AI811491, A83860, D80012, D84096, AP000533, AP000534, AW513983, AW589899, and AW771462.
HBJJG02	259	1151462	1 - 1579	15 - 1593	AW340286, AI684793, AA482180, Z35720, AI952956, AA315455, AI472613, C20647, AI446389, AB018272, and D85434.
HBJJN65	260	1151463	1 - 657	15 - 671	AI923030, AI026007, and AC002036.
HBMUJ35	261	1195500	1 - 2104	15 - 2118	AI076933, AA528171, AI401590, AI718291, AI689866, AI863198, AW131778, AI038040, AI147972, AI249927, AI365611, AI288899, AI151170, AA700233, H17877, AI954954, AW162862, AI540170, D61629, H17876, AI198286, AW044526, H42874, AI139301, AI242217, Z39310, W79945, AI075889, AA243131, R56563, AA535601, AI741349, AA810355, AA279039, H42938, R75964,

					T33359, F06396, R54635, H13407, T77063, T16677, W74194, T33337, F09103, AA339968, R76797, F11440, R25480, T76959, R45549, AA336574, AI372458, D31406, N64752, T47654, R56564, AA350270, H07947, H06069, R40256, D31281, R14306, AA449270, AA689335, T47653, R54900, AI985867, AW338102, H07857, H75505, AI685474, AA659714, R58804, AI372459, AW150467, AI142259, N76159, AA243148, AA449406, H67430, T77369, T77123, H75504, AF177758, AF177759, AW511825, AW512205, AW515107, and AW516218.
HCEBP60	262	1227635	1 - 4316	15 - 4330	AI479425, AA398711, AA700162, AI026652, AI123893, AI559289, AI866808, AI457998, AA688243, AL137943, AA701977, AI143298, AI598257, D63219, H30714, AI580255, AI800031, AI187336, AI560097, AW403369, AA973875, AA699888, AI650287, R54495, Z22002, Z40356, AW196903, AW337450, AI648571, R42726, AA594866, W23972, AW001283, AA317722, R20942, Z21999, R36552, AW170403, AI784621, AA322174, Z44429, AI365119, AI699531, AI333430, X93823, AI969540, N55592, N55588, N91854, AA393366, D25908, T11455, N22276, AI049850, AA580663, AW089272, AB023220, Y17457, Y17459, Y17458, M85164, and S52228.
HFGMA55	263	1150870	1 - 721	15 - 735	AI076933, AA528171, AI401590, AI863198, AI718291, AI689866, AI288899, AI038040, AI147972, AW131778, AI249927, AI365611, AI151170, AA700233, H17877, AI954954, AW162862, AI198286, AI540170, AI242217, AW044526, H42874, AI139301, AI741349, AA243131, Z39310, AI075889, H42938, AA535601, R54635, T77063, W74194, AA810355, R75964, T33359, T16677, T33337, R45549, F09103, T76959, R76797, AA339968, AI372458, T47654, N64752, R56564, H06069, R40256, R54900, AA689335, AA449270, AI985867, H07857, AW338102, H75505, AI685474, AA659714, AA336574, AI372459, AW150467, T47653, F06396, N76159, AA449406, H67430, T77369, T77123, H75504, AA279039, AF177758, and AF177759.
HLHTE91	264	789603	1 - 1196	15 - 1210	AI124644, AA256351, AA294967, R71807, AA305696, AW276058, AI631672, AI861834, AI888075, and AB020698.
HLYFI58	265	1151495	1 - 932	15 - 946	AI346680, AW148864, AI435036, AI015214, AI797265, AI125637, AA883976, AA758035, AA205719,

					AA205734, AI806695, AI341803, AA524131, N47862, AI753139, AA478929, AI018586, AA679617, AI141854, AI308787, AA489619, AI565454, AI817187, AA205343, AA489720, AA917400, N93143, AW293061, AA708643, AI370723, AI076959, W39081, AA476623, H92019, AA602430, AW002690, AI244491, AA719625, AA642736, AA788646, H92018, AW028991, AA449151, AA253213, T24644, AA342250, AW173334, C03157, AF126736, D42052, and AB022161.
HNNBJ44	266	1151312	1 - 352	15 - 366	AW392670, AL119497, AW363220, AW384394, U46347, AL119443, AW372827, AL119457, Z99396, AL119319, AL119444, U46341, U46346, U46350, U46351, U46349, AL119324, AL119484, AL119363, AL119391, AL119335, AL119355, AL119483, AL119341, AL119399, AL134533, AL134528, AL119496, AL119439, AL119396, AL134531, AL119522, AL037205, U46345, AL134529, AL042614, AI142132, AL134527, AL134538, AL119418, AL042450, AI142134, AL042965, AL042975, AL043003, AL042542, AL042544, AL042970, AL043019, AL042984, AL043029, AL119511, AL042551, AL119464, AB026436, AR054110, A81671, AR069079, AR060234, and AR066494.
HSLJI46	267	997643	1 - 614	15 - 628	W02311, AA151521, AW367760, R01303, Z21334, AA337415, A83856, D29956, AC004204, AP000508, D84394, and AF057146.
HTFOK70	268	1151518	1 - 913	15 - 927	AA861060, AA457008, AI686550, AA456933, AI146978, R64191, AI636863, R07171, and AA872309.
HUSXO71	269	1164014	1 - 508	15 - 522	AI185977, AA116021, AI222587, AA148178, AW020095, AI345745, AA282824, AW410260, AW410829, AI921254, AA587120, AW162189, AI583966, AI813533, AL047883, AI440238, AW087217, AA729782, AI280786, AW151974, AI635634, AL048499, AI473536, AI866573, AW151979, AI472487, AA954910, AA456793, AI096771, AI439664, AW020619, W45039, AI499325, H42557, AA215584, AI223980, AL037693, AI871977, AI686414, AI762707, AI219380, AI890907, R75918, AI955486, AA983252, AI696809, T66952, AI627714, AW160363, AI560096, AC008079, AC008101, AF176642, AF176651, AF000167, AF091084, M79462,

					AF141289, U72621, X06146, AF039202, AL110158, AF118847, AF145233, AF129131, A49723, A49722, AF139373, E06743, AF118094, AC006203, AF113677, Y11254, X00474, AL133053, E02349, X95310, I22020, AL050393, AL133623, X60786, AL050155, I18358, I34395, S78214, AF087943, X84884, AF019767, AB031064, I52013, AL137459, M85164, AL137538, AF109155, AL117649, AF090901, AL133030, AJ005690, AR011880, S66283, AF088991, I00734, E12747, X63410, AF113694, A12558, S83456, X61049, X60769, AF113690, AF090934, AF126247, AL133558, AL122104, AL049382, AF093119, AR015970, AF118090, Z72491, AF210052, I09202, E01356, E01812, AL117632, AF103804, AF090903, AL133016, AL133029, E00617, E00717, E00778, AL080147, AL080150, X69026, AL122118, A21625, AL117444, AL122121, AR038747, AF104032, U72620, D83032, AB014082, AC004399, Z82250, U95739, AC002540, AF179633, AP000514, AL030998, AL034417, AC002416, AC004686, AC009501, AC018767, AC005224, AC004485, AC002287, AC005296, AC007392, AC009233, and AR038904.
HWBDP39	270	1223498	1 - 3163	15 - 3177	AI830320, AI650699, AA425859, AL135164, AW407213, R93643, T08247, AA903976, AI339150, AA393578, D81801, AA069108, H05354, T78715, H17603, AW375579, AA425265, H14868, AA353380, AA382228, T31679, H28195, AI452888, H60758, AW341054, H21724, R44576, H05304, R19312, H28238, AA344135, W24078, R60163, AA397778, AA804197, R47192, R47367, T70745, AA350456, N72648, W03235, N56575, N87382, R72018, R07516, R46310, R73289, R46877, H43991, R94496, R01365, N57940, R46516, AW262539, AA585422, AI811171, AA807691, AI288064, AL046144, AL120300, AL120905, AB028980, E06743, and AF153205.
HKMMQ73	271	840459	1 - 2359	15 - 2373	AL118812, AW188429, AI749512, N40918, AI499154, AA811869, AW021247, N77798, N22272, AI889330, AI357484, N81170, AA811893, AW023573, AI949364, H88291, H88292, N46775, H89526, H89342, AW103567, N54871, AL133897, AA553772, H96737, AI866975, AA515135, AI097558, AI659923, T58105, AA078230, AA078067, AA077989, AA078254, AA078073,

					AA078488, AA077958, AA078242, AI305821, AA297575, N72437, N33137, AA078630, AI168742, AI127459, AI082244, AI500233, W52493, N66537, AL043224, AA078152, AA078071, AA078271, H82202, AI758738, AA078573, AA078288, H85417, N24046, AA077991, H84628, AA078172, H89739, H90366, AA649830, AA078379, AA078270, AA078224, AA078583, H13732, AA077784, AA078359, AI439494, AA507857, AI890136, AA077755, AA078390, AI032142, T70600, AA078672, AA078053, H98093, AA078315, AW058517, AA078044, AW022205, T92043, AA229206, H73636, AA618463, AA020886, AA584142, N63750, AI798295, R10707, AI610170, R49180, N58118, N74287, AI796126, AW069159, AI990093, W80974, W80973, AA327824, AI185963, AW338024, AI913762, AI751629, AA775851, H01805, AI026869, N71013, W60782, AW303539, W60496, AI831590, AA558117, AA558059, AA993924, AA935594, AI200790, AW327404, AA759171, U46225, AI133031, N35489, AL134899, W44391, T95863, H19889, AA021479, F03457, AA309764, AA489809, AA229172, T23466, AI587615, AW439455, AW160391, AL137342, U07683, U30930, U32370, U62899, L21698, X92177, X92122, AF110520, AC008169, AL034400, AC002483, AC007546, AL049776, AC005017, AF131205, AC007066, AL078630, AC008123, AC004093, AE000664, AF109905, AF027865, AC004921, AL121593, AC011013, AL133445, AC005259, AC004615, AF050157, AC006840, AC007585, AC006020, AC003019, Z93931, AC007402, AL096791, AC009396, AC006584, AL080285, AL049588, X55221, AF027390, AC005290, AC007363, AC004491, AC004686, AF095719, AF109719, AC003658, X99801, AC005229, AL132777, AC000385, AC007880, AF030001, AC006289, AF109076, AF100956, X99946, AL033521, AC005015, U91326, AF111169, AC005284, AC002544, AL121595, Z83307, AC009501, AC003060, AL109946, AP000569, Z93403, AJ131017, AF042090, AF105075, AL035658, AC006978, AL021329, AP000025, AL024507, Z82244, AJ245636, AC005807, AC004538, AC005829, AF038458, AP000561, AC005384, AL021154,

					AC002133, AC008160, AL122023, U82390, AF090901, AC007308, AC007917, AC005057, AL049591, U82321, AC004695, AC006318, AC006961, AC007376, AC005666, AF060868, AF031630, AC005992, AC005743, AF177767, AC004755, AC007306, M60322, AC005835, AC006956, AC002324, Z82217, AC007193, AC008055, AP001137, U72484, AL035443, AC002994, AL021938, AC000398, AL022166, U56716, AF133047, AC005280, AC005392, AC002298, AB010149, AL133399, AP000557, AC002454, M64239, AL021877, AC005960, AL023878, AC006479, A62482, L43680, AF084363, AC000115, AC007049, AC009225, AC007567, AF139987, AC006949, AF009660, AC003694, Y12488, AC003984, AF081913, AL035089, AC005742, AC009287, Z83820, AC005520, AC004882, AC004139, AC004008, AF022141, AF112374, AC006313, AC006288, AC006012, AC004383, Z98948, AC004805, AC003690, and AC007151.
HVVBK72	272	1179755	1 - 909	15 - 923	AI016826, AW367808, Z99396, AW392670, AL119443, AW372827, AL119496, AL119522, AW384394, U46341, AL119497, AL119319, AL119483, AW363220, U46349, U46351, AL042970, AL119418, AL119399, AL119335, AL119444, AL119363, U46346, U46350, AL119396, U46347, AL119457, AL119484, AL119324, AL119391, AL042551, AL134518, AL119355, U46345, AL119341, AL042850, AL119439, AL042544, AL043037, AL037205, AL134902, AL134528, AL134524, AL042542, AL042980, AL043039, AL079683, AL042995, AL134538, A81671, AR060234, AR066494, AR054110, AB026436, and AR069079.
H7TXB52	273	981972	1 - 1551	15 - 1565	AW073152, AI924256, AI983814, AI826099, AA074665, AA485951, AA555324, AA314946, AI380060, AA147450, AI417718, AA927984, AW157484, AI005367, AI167363, AI582706, AA156460, N94332, AI784341, AW079088, AW139642, AI765898, AA075306, AA035202, AI368582, AI423398, AI764964, AA309913, AI983075, AA489562, AI766272, AI262488, AI183863, N30837, AA084636, AW299506, AA878607, AI913495, AA316253, AL047655, AI267956,

					AA374202, AW363589, AA916644, AA312939, AA923158, AA081517, AA370538, AA035201, AA031672, AA031673, H14293, AA464391, AI524538, N53273, AI471461, and AF119226.
HDPRY71	274	1217205	1 - 2721	15 - 2735	W35190, AA374753, AW385663, AA411671, AI949995, AW207369, AA476519, AI341954, AA903353, AA625487, AI224849, AI802648, AI804236, AA626114, AA410486, AW408032, W23688, AI268230, AA454636, T05172, AW131859, AW372054, N20256, H91044, AI024730, H82446, AA362688, AA362690, AA362689, T29199, AA743191, AA406500, AI431242, R60628, AA345748, AL044652, AW392670, AL119399, AL119324, AL042544, AL119457, AL119443, AI431305, AI432646, AL119483, AL042551, AW372827, AL134902, AA456248, AL119355, AL119319, U46349, Z99396, AW384394, U46351, AW363220, AL119497, AL119418, AL119484, AL119363, AL119391, U46350, U46347, U46341, AL119444, AL119341, AL119401, AL119439, AL119522, AL043011, AL119496, AL119396, U46346, AL119464, AL134536, AL119335, AL134538, AL037205, AI142132, AL042984, AL134525, AL042975, U46345, AL043033, AL043029, AL042614, AL043019, AL042450, AL042542, AL042965, I58322, I58323, A94048, A94061, AR035224, I66487, A49045, I09252, I09251, I66498, E01324, I08638, A94046, A94054, I09270, I09268, I09269, AR038321, I07209, I07249, AR068508, AR068510, AR067734, AR068509, A63954, I91969, A49701, A29109, A32111, I66495, AR068550, A23373, AR068551, I66494, I66497, I66496, I66486, A27169, A27170, A39929, A83151, AR067731, AR067732, AR038307, I09267, AR051537, AR051524, Y17793, AR066494, AB026436, A42964, AR060234, AR054110, A81671, and AR069079.
HGOCA12	275	968763	1 - 347	15 - 361	AA346095, and AA461361.
HHCJ29	276	1077517	1 - 2336	15 - 2350	AI986076, AI924027, AI923229, AW295444, AW293487, AW294040, AI363324, AA758236, AW137221, AI754532, AW071727, AI520903, AI674771, AA458935, M62236, AI150122, AW451151, C75369, AA632097, AA419026, H39019, AA766882, AI499027, AI138566, AI671505, AW028701, AI936956, AA927200, AI499889,

					AI951718, AI937676, AI937693, AA631584, R90882, R90852, AA831761, AW272473, AA513396, R52029, H45973, AA587691, AA573355, AW172677, AI309135, R48195, AW452454, AA419183, AW449450, AA378530, H45974, AA764719, AA975710, R88522, T84836, AA513385, AA994453, R88521, AI539197, AW297608, AW006713, R09467, AA226932, AI826004, AI191758, AI927070, AW197417, R48194, AA883402, R21426, R00335, AA767979, AI431510, AI086897, R52028, AA913158, R00228, R21427, AI001000, H39043, R09468, AA993108, AL110210, AF077000, and AF169350.
HODGC61	277	973449	1 - 512	15 - 526	AC020695, AC020695, AC017086, and AC017086.
HBXGQ52	278	1229467	1 - 1243	15 - 1257	W22076, E16366, and I21539.
HE2JS39	279	1121932	1 - 776	15 - 790	AI082067, AI741256, AI146716, AI808344, AI192718, AI218348, AW263730, AI760268, AI334351, AI038323, AA418248, AI192996, N41765, AI333609, AI342187, AI354288, AI189779, AI241881, W87873, AI291811, W69541, AI334089, W69457, AA002244, W87775, AA115572, R79274, H87504, W20424, N91135, R31051, AI868502, R33909, R81271, N47926, W06960, AI191011, AI470433, AW044117, R31134, AA971376, AA969755, AA960886, Z20835, Z20837, Z20838, Z20805, Z20843, AA918440, N29378, AR069078, AF102166, A75045, A75047, A75048, A75017, and A75053.
HE7SH21	280	960302	1 - 1475	15 - 1489	AI768135, AW163291, AI815943, AW157281, C15942, AW163553, AI768145, W95728, AW157634, AI498009, AA125928, W95771, AA161306, AA774145, H20587, H26980, AA219548, AA774146, AI815750, H49744, R12017, Z45837, R39856, R44419, Z41474, R19631, R89506, D44823, and AL035462.
HMIAO23	281	1103488	1 - 993	15 - 1007	H15302, R20857, Z44841, T34574, AW380909, AW274431, Y17849, Y17850, and AL110252.
HELDW45	282	944301	1 - 579	15 - 593	
HSRBB31	283	1121889	1 - 851	15 - 865	R58571, and R58572.
HTEOW39	284	1151517	1 - 642	15 - 656	AI564426, AL037030, AW089006, AW151136, AI241901, AI309306, AI365256, AI569945, AW020419, AI473451, AA911767, AI824648, AW084447, AI890507, AI886055, AI249877, AI698391, AI932794, AI251221, AA456793, AI637584, AI917963, AI916419, AW087455, AI633125, AL038665, AI524179,

					AI955945, AI872545, AW263796, AI961589, AW196105, AI340627, AI653979, AI345608, AI909661, AL036638, R65859, AL041150, AI439920, AI955117, AI818358, AI345471, AI669864, AA420722, AI870192, AI590043, AW082532, AI633402, AI702073, AI345347, AI343091, AI921464, AI345415, AW130134, AI537677, AL040011, AI700305, AI538850, AI468872, AW082623, AI804983, AW090086, AL039716, AI335363, AI953765, AI690410, AL138406, AW131402, AI812107, AI582871, AI280637, AI623941, AI971615, AI590415, AW161579, AI002285, AI422688, AI561356, AI564290, AW198075, AL041862, AL120526, AI281757, AI610690, AW162189, AW020693, AI536601, AW169671, F37439, AI433157, AI366922, AW089689, AI553645, AW131282, AI270295, AI571439, AI872423, AI560545, AI476527, AI590021, AI859644, AI468970, AI625226, AI440263, AW192652, AI499393, AI589428, AA835801, AI554343, AI554821, AI635045, AI471909, AL135022, AW026425, AI421903, AI494201, AI349957, AI312542, AI890907, AI621341, AI784233, AW148408, AI344935, AI310575, AI345005, AA464646, AW152182, AI619992, AI267162, AI686808, AI340533, AI354630, AW051088, AW074869, AI345677, AI446373, AL046466, AW023338, AI565172, R41605, AI287449, AI677796, AI287326, AI539800, AI926878, AI815237, AW020397, AL042440, AI567944, AI340511, AI866573, AI366992, AI873923, AW262026, AA806719, AI635492, AW117743, AI291601, AL040694, AW073926, AI929108, AI924971, AL037454, AL038605, AI340519, AW105087, AI340603, AI355779, AI670009, AI979129, AI697099, AI491710, AA580663, AI114703, AW189301, AI635478, AI345253, AI669639, AI307494, AI572021, AI633330, F34866, AL134598, AI419650, AW104724, AI473554, AI445611, AW163834, AL119863, AW089275, AI564719, AI310606, AI619990, AI587114, AI968316, AI345745, AW054972, AI348854, AI863067, AI554516, AW192712, AW129616, AL036780, AI520785,

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HE2PE32	285	1106571	1 - 548	15 - 562	AR012068.
HSIDW39	286	1211446	1 - 885	15 - 899	H60622, AI796110, T83017, AI796175, AW242457, AW235515, AI433547, and U50545.
HPMLD30	287	1226192	1 - 3475	15 - 3489	AA653812, S78429, E03539, and X01966.
HOEKP17	288	1204712	1 - 2226	15 - 2240	AI911592, AI582274, AA400638, AA166937, AA402257, AA287189, AI377981, AA402753, AW269430, R66033, AI027183, AW073084, AI368056, AA287098, H02704, AI286063, R66058, R77852, AA400321, AA768662, AF121186, AA600147, AA884222, AA360693, AA166757, R70070, AA701028, R66059, R66034, AA732603, AA383050, AA808031, R70025, R77761, R81479, R36810, R81672, D20612, AF169803, and AL034347.
HFXDP67	289	1228141	1 - 3396	15 - 3410	AI526017.
HJABA59	290	1199933	1 - 1972	15 - 1986	AL046883, AI680201, AA242870, T26679, AI654983, AI033997, AW168011, AI027905, AW135499, AA905139, AI276625, AI091577, AI536117, N29717, AI580777, AI142966, N44258, AI080198, N36383, AA451664, AA416936, AW264871, AA484628, AI373715, AA782062, AA279695, N29688, H70102, AA085543, AA905280, AA252150, AA355001, N23998, AI061048, AI220668, N94585, AA469901, AI758177, AI950700, R17835, AL079567, N56727, R34816, H02679, N56697, AA322063, AI984621, AI984388, T32386, AI872682, D61122, AA781328, AI579968, W23792, AI016080, AW170391, AL046884, AI089223, AA279726, D81434, T97980, R34706,

					T97979, T25520, AI956018, AA342222, AF025794, AF121214, AF121213, AF121212, AF121210, AF121208, and AF121211.
HKIXB03	291	1129055	1 - 631	15 - 645	AA534863, AI807346, AI807337, AA814725, AA860170, AA862556, AI342011, AA746476, AI167626, AA425316, AA063596, AI830609, N90805, N50990, AA927981, AI565166, AI700334, AA721653, AI924447, AA928627, AA047076, AA844403, R41759, AI651907, H15256, F07545, F06839, R55583, H44039, W19518, AI952216, AI952225, AI658871, AA877252, AL133582, and AF169802.
HKMMF49	292	1124742	1 - 1013	15 - 1027	AI742260, AW418588, AW380457, AA456001, AW391502, AA919129, AI241222, AI570184, AI624542, AW380438, AI433445, AI016052, AI935422, AI284575, D80179, AW024435, AA876251, AW370994, and AW370944.
HLDOG51	293	1151491	1 - 1247	15 - 1261	AA625096, AI760763, AA558453, AA211370, AI277233, Z25220, AI949428, AI991563, AA323998, T52468, AI364908, F00295, AI364281, and T56301.
HSVAI25	294	1130819	1 - 773	15 - 787	AI088055, AI051368, AA659182, N72718, AA584123, AA644090, AC005225, AL109798, AC005182, AC004525, AC005003, AC004551, AC007182, AC003101, Z84469, AL031427, AC005015, AL034423, Z98941, AL034400, AC008119, AL034402, L78810, AL080242, AC010206, Z97055, AC002350, AC008101, U62317, AC008372, AC005284, AC003046, U52112, AC016027, AC016830, AC004991, AC004032, AC002385, AL022238, and AL008726.
HSXCP56	295	924635	1 - 950	15 - 964	W19518, AA425475, AI807337, AI807346, AI830609, H44111, AA036677, AA814725, R17206, AA339782, AA534863, AA047075, AI904497, AA425316, AI342011, AI167626, AA862556, AA746476, AA063596, AA860170, F07545, F06839, AA927981, H15256, N90805, AI565166, R55583, AA877252, N50990, AI700334, AA721653, AA047076, AA928627, AL133582, and AF169802.
HBCAT08	296	1167275	1 - 4315	15 - 4329	AI186513, AW084503, AI819855, AW377487, AA639852, AW377564, AW137025, AI754458, AA029866, AA775721, AI806585, AA716174, AW389528, AA461165, AA488403, AI989581, AA152257, AI375044, AW084696, W72645, AW389530, AA151274, AI753033, AA668610, W93716, AA461339, AI804151, AW262139, AI352683, AW152443,

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					AI686434, AW074749, AA340816, AI799528, H83604, R36584, AA339155, AA190681, T47880, T79044, AA083184, T93022, AI471116, AA374025, AA232462, AA329739, AW002652, AI083602, AA534585, AI825225, AA375517, H26261, H01758, AA242739, AA495727, AA375708, AI962540, AI419612, AA775586, AA375223, AA346892, AF200348, D86983, AR020614, A84916, A62298, AR018138, A62300, AR008278, AJ132110, AB028859, AF058696, A82595, Y17188, A30438, X67155, Y12724, A25909, D26022, D89785, A78862, D34614, A94995, A67220, X82626, AR060385, AB002449, AR008443, AR016808, Y17187, D88547, I50126, I50132, I50128, I50133, AR066488, AR016514, A45456, AR060138, A26615, AR052274, AR025207, AR008277, AR008281, U46128, Y09669, A43192, A43190, AR038669, AR066487, I14842, AR054175, U79457, X68127, AR066490, I18367, A63261, D50010, AR016691, AR016690, AR008408, AB012117, AR062872, A70867, D13509, A64136, A68321, A85396, D88507, AR066482, I79511, A44171, AR060133, A85477, I19525, A86792, X93549, AF123263, AR032065, AR008382, T92956, T94798, R09509, T81363, T98172, R75810, R75809, AA022779, AA113413, AA152247, AA191263, AA196125, AA227254, AA235746, AA502096, AA588198, AA588209, AA834225, AA864218, N55866, N88123, C21474, AA095308, AA206017, AA248840, AA489491, AA723217, AA700352, AI365190, AI266142, AI686975, AI739155, AI739468, AI702820, AW270193, AW470735, AW589684, AW593539, AW664104, and AW770899.
HHFBU53	297	1048855	1 - 570	15 - 584	H55804, R17185, D28514, D28513, D87994, D87993, D87995, M80482, AB001906, AB001905, AB001904, AB001903, and AB001907.
HTTDO45	298	942505	1 - 2021	15 - 2035	AI356346, AA773564, AW149620, AI608941, AI934471, AW166202, AW248975, AI927017, AI927649, AI935538, AI689743, AW237367, AA669837, AA773811, AI826904, AA522692, AI985556, AA160675, AI766899, AA129593, AI242161, AI339338, AI915875, AI281977, AI679419, AA743161, AW129250, AI292110, AA995857, AI632625, AW005265, AW205957, AA031697, AI080003, AI985496, AI640340,

					AI075293, D58067, AI753324, D58068, AA100913, AI679929, AI681080, AA186698, T60268, AA834774, W42513, AI796037, AW337148, AA480672, AA058529, AI637787, AW243240, AI659936, AA173985, AA812035, AI332985, AA995455, AA031863, AI640567, AA173629, F22148, AA188326, H29767, AI650925, AW248532, AA974029, F30242, AA128581, AA129330, AI524808, AW072302, W61060, AI695223, T88743, AI340251, AI962198, AI347479, AA934427, H08029, AW193412, AI681438, AI373314, AI480195, AW270842, H29768, AI885635, AI085778, AW134585, AW024782, AI352226, AA366465, AI272109, T68371, AA160087, AA317205, AW025204, W72566, AW052130, W42415, AI765977, AA330736, AA352143, AA781222, AA962214, AI310696, R00503, AA923685, AA352395, AA384254, AW025212, AI392859, H38826, H02114, AA303841, H07926, F36818, AW269249, AA011079, R57464, AA872783, AI640318, AA100912, AI333009, AF006747, AA878505, R40908, AW403749, AI821667, AA470517, AA576938, AA587251, AW341091, R13392, AI589503, AW149318, AA877207, AA129619, R57469, AA011078, D25761, W76560, AI795938, H93354, AI915899, AA470563, AA248745, AA999787, T61648, AI001107, F26241, AI985114, N88876, AI985563, AW369482, AI085732, AI096771, AA761557, AA282824, AI307513, AA715307, AA809974, AA420834, AI963852, AI697204, D16294, AL133074, AC005520, E12888, and D44497.
HTPII72	299	1104236	1 - 692	15 - 706	W27420, M78120, AC004211, AC005937, AB023048, AP000511, and AL122037.
H6BSE22	300	1151371	1 - 649	15 - 663	AI806796, AA740715, AA205032, AA687336, AA909749, AI803338, AI720241, AI248115, AA728749, AI244027, AA358831, AA356521, AA205681, AI221835, W57837, and AF126736.
HDPAE43	301	1220621	1 - 3628	15 - 3642	AI954606, AL042215, AL048436, H06768, W26643, AI962184, AI650383, AA281450, AI382039, AI125170, AW241906, AI862045, AA351117, AW407638, W27754, T09466, AW407356, T33860, AA806369, AI902163, AI206301, T78367, W28111, AA340770, AA349910, W27048, R17004, T09384, AW382242, AA701415, AI132992, AI372668, AA349195, AA180230, AA490675, AW386034, AB028986, AL049258, AC007312,

					AF118067, and AW589858.
HDPFM16	302	1193042	1 - 2116	15 - 2130	AI347260, AI056270, W87850, AI992086, AA284365, AW390519, W00688, N78231, W20420, AA262876, Z45502, AA477059, F08122, N55729, R16333, H68037, F06272, AW361275, T96033, AI701434, AA043526, H90951, AA101843, AA028059, AA101844, AI247955, W87590, W00863, AA314665, AI568114, AW189250, AL120676, Y14314, and E12705.
HFPCN10	303	1151478	1 - 1108	15 - 1122	AA016989, AA054177, AA248763, and AC004895.
HLQFO35	304	1161174	1 - 1068	15 - 1082	AI979288, N51106, AW263802, AW170026, AA020944, AI660372, N22360, AI247970, AA856768, AA452217, H81603, AW339837, AA926997, AA370062, N54865, N54231, AA362770, AL045803, AI784057, AI049830, AI820798, AA427374, AI401089, AI474187, AI821377, AI948443, AA579853, AC005095, AC005911, AL121578, AC005162, AC007376, AC005053, AL034402, AL117338, AC005792, AC009399, AC004103, and U52112.
HMWIU94	305	1150834	1 - 559	15 - 573	AW295518, AI269069, and AA470095.
HSATQ28	306	1124600	1 - 948	15 - 962	H58978, AI241390, AW405039, AA223756, AI064938, S80876, and U40462.
HTPIL46	307	1196787	1 - 2474	15 - 2488	AW137063, AI473912, AA044687, AI130924, AA056651, AA150290, AA150588, AW339573, AI262260, R00053, AI093126, AW339565, W68002, W67990, AW026865, AW303604, AA699316, AA731089, H72685, AA044899, AI583379, H72684, AA143094, Z19127, AA609380, H14362, R16573, R46567, AA677286, AB020656, and AF161542.
HNGEN37	308	1103305	1 - 518	15 - 532	
HLMDO77	309	974855	1 - 633	15 - 647	AI302099, D80253, D59859, C14389, D80366, D51423, D57483, D80188, D80227, D59889, D59467, D80166, D59619, D80210, D51799, D80240, D80269, D80391, D81030, D59787, D58283, D80212, D80022, D59275, D80248, C14331, D80219, D80024, D80195, D80196, D80164, D80043, D59502, D80251, AA305409, D59610, C14014, AA305578, D81026, D80133, D80378, D80522, AA514186, C15076, D59927, D80038, D50979, D51022, D50995, D80193, D80045, AW177440, AA514188, D80241, D51060, AW360811, D80268, AW178893, C14429, AW377671, AW375405, D80439, C75259, D80302, T03269, AW179328, D80247, D58253,

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HNKAZ51	310	1154961	1 - 988	15 - 1002	U77054, Z99396, AL119457, AL038837, AL037051, AL036725, AL039440, AA631969, AL039074, AL119324, AL036418, AL119399, AL039085, AL036858, AL039564, AL039156, AL038509, AL039108, AL039109, AL039128, AL036924, AW392670, AL134524, AL119443, AL037094, AL042544, AL039659, AL038531, AL036196, AW372827, U46341, AL119497, AL039625, AL039648, AL045337, AL038447, AL036767, AW384394, AL037082, AL037526, AL036190, AL037639, AL039678, AW363220, AL039629, AL119319, AL039423, AL036238, AL119363,

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HOGDR01	311	919899	1 - 1338	15 - 1352	AI805425, AW273749, AA884001, AW276210, AW317074, AW295870, AW383315, AW152554, AI940071, AI969215, AW383305, AW383297, AW083601, AI249364, AI566393, AI739044, AI357916, AI671350, AW304326, AW079920, AW083723, AI274014, and AC003965.
HUKEP18	312	957456	1 - 838	15 - 852	AA203189, AI057441, AW139922, AA719156, AI653844, AW104223, AI208345, AI535660, AI536138, T18597, D80045, AI535639, D59751, AI557262, C15076, D80164, AI557084, D59467, R29657, C14331, D80193, AI526078, AI525856, D81026, C14429, AI541365, D59787, AA585439, C14389, AI525556, AW366296, D80195, D80227, D59502, AI557533, AI525316, D50979, D81030, D59275, R45895, D80269, AI541205, D59927, D80022, D80188, D58283, C15406, D80166, D51799, D59859, D59619, AI525500, D80210, D80391, D80240, D51423, D80253, D80043, AI557864, D59610, AA305409, D80212, D80038, D80196, D80219, D57483, AI905856, D80366, D80378, D59889, D50995, AA585098, D52291, D80241, D80251, D80024, Z32887, AW177440, AI541356, AI557731, Z33559, D51022, AI557602, AA305578, AW375405, C14407, AW378532, R28735, R29445, D51060, D80522, R28967, D53161, D57491, T03269, AW178893, C14014, R28892, AA585378, AA585325, C75259, AA514188, AW179328, R28965, AI557155, AA585101, T11417, R29218, Z32822, D80248, D54897, D51250, AW369651, AI557751, AI541535, AA514186, AI541346, AI535686, D80134, AW352158, AI540903, D58253, AI557809, AI540974, AW375406, AW178762,

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HWHGF95	313	1155021	1 - 1351	15 - 1365	AA583908, AF135026, and AB012761.
HEMFC61	314	836514	1 - 701	15 - 715	AB015226, AB015227, AB015228, AL110299, X99273, and U60063.
HEOQP44	315	942596	1 - 1810	15 - 1824	AL042026, AL040542, AL042640, AL042540, AL046135, AL041808, AL044178, AL044364, AL043613,

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HHEKZ12	316	878267	1 - 428	15 - 442	AL042026, AL040542, AL042640, AL041808, AL042540, AL044583, AL046135, AL046244, AL041936, AL043604, AL043201, AL046383, AL039689, AL043218, AL042346, AL044015, AL043425, AL043424, AL045991, AL079876, AL042700, AL044377, AL043468, AL043795, AL043128, AL042245, AL044029, AL044771, AL042712, A25392, I03356, A78783, A78785, A78787, A61052, I02541, A60955, A21624, A25853, A02712, A02710, E12615, AR035193, A60975, A84772, A98767, A13388, A21625, A68112, A68104, E14304, A47368, I01971, A07700, A02228, A02230, A13392, A13393, I62368, AR031488, I13521, I19516, I19517, A98467, A84776, A18756, A71435, A00781, A84773, A84775, I52048, A93963, A93964, A27396, A95052, I63120, A68114, A38214, AR027070, AR043602, AR067733, A76773, AR062871, AR017907, AR043603, A84774, AR043601, A22413, A95117,

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HHELA35	317	878217	1 - 449	15 - 463	AL042540, AL042026, AL040542, AL042640, AL041808, AL046135, AL044583, AL041936, AL046244, AL043604, AL043201, AL043218, AL046383, AL039689, AL042346, AL044015, AL043425, AL043424, AL045991, AL079876, AL042700, AL044377, AL043468, AL043795, AL043128, AL042245, AL044029, AL044771, AL042712, AL043867, AL049007, AR017908, A78783, A78785, A78787, I03356, I02541, A60975, A61052, A60955, A21624, A25853, A02712, A02710, E12615, AR035193, A84772, A98767, A13388, A21625, A68112, A68104, E14304, A47368, A07700, A02228, A02230, A13392, A13393, I62368, AR031488, I13521, I19516, I19517, A98467, A84776, A18756, A71435, A00781, A84773, A84775, I52048, A93963, A93964, A27396, A95052, I63120, A68114, A38214, AR043602, AR067733, A76773, AR062871, AR017907, AR043603, A84774, AR043601, A22413, A95117, A95051, A18053, AR027100, AR029418, I44531, I28266, AR067734, AR067731, AR028669, AR028668, AR028667, AR028670, A00784, A00783, A18050, AR037157, AR054109, A71440, A44171, A23334, A75888, I70384, I95540, AR018924, A60212, A84746, A60209, A60210, A32110, A63067, A64973, AR067732, A51047, A63064, AR029417, AR018923, A60111, A60211, A48774, A23633, I21869, A29109, A60109, AR007512, A63072, AR028564, A49700, A25909, AR031375, A48775, A23998, AR068507, AR068506, A86792, A58522, A83642, A24783, I44516, A58525, A24782, A83643, A49045, A91750, AR009152, AR009151, AR000006, I60241, I60242, AR000007, AR028672, E16678, A58526, A82653, AR038066, A58524, I50882, A58521, A91753, E16636, A83151, A58523, A93016, AR020969, I01971, AR027070, E00974, I84555, E00954, E00952, E00953, E00955, I08049, I66488, A20702, I66489, I43960, AR021440, A49987, A37074, A37075, E03165, E02221, A10359, E01614, E13364, I12243, I12244, A49702, A10360, A13038, E02679, E02104, E02098, A29289, A42484, A42481, A52326, E02001, E13740, I09342, E01718, E02003, E02102, E03550, E02096, A28163, E02100, I66490, E01997, A58998,

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HSYBQ34	318	918789	1 - 160	15 - 174	A82653, E16636, A18869, A18870, A24410, AR038066, AR027920, AR027921, I00670, I03513, AR027917, AR027918, A48542, AR027922, E00624, E00623, A16272, A16273, AR062136, I06768, A16270, A16271, I07094, E00272, I07863, E16678, A25933, A00181, A28884, A28886, A28889, A28863, and A28870.
HFCBA44	319	948533	1 - 486	15 - 500	AA450272, AA339398, AC009084, AC009084, AC027131, and AC027131.
HOUBE50	320	948519	1 - 229	15 - 243	AA578623, AB033086, AC010979, and AC010979.
HDPAS16	321	734057	1 - 482	15 - 496	AW410916, and AA337013.
HFLAA23	322	960332	1 - 771	15 - 785	AC073744.
HCFMZ90	323	922112	1 - 867	15 - 881	AA099896, W39462, W93311, AA704134, AA102091, AA934684, AA570036, AA973597, AI984459, AA503779, AW073912, AA808602, AA149171, AI984559, AA832230, AA374289, AA651931, AI826677, AA149172, AA715137, W44955, AA046081, AI377362, and AC024247.
HFCES27	324	1103330	1 - 1187	15 - 1201	AA704134, AA102091, AA934684, AA570036, AA973597, AA832230, AA503779, AW073912, AA808602, AI984559, AA651931, AI826677, AA149172, AA715137, W44955, AA099896, AA374289, AI263829,

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HSDFK78	325	1155464	1 - 292	15 - 306	
HSDJX58	326	891067	1 - 1475	15 - 1489	AA570522.
HSLHV27	327	1105339	1 - 999	15 - 1013	T03269, D80212, D58283, D80166, D80195, D80193, D59927, D51423, D59619, D80210, D51799, D80391, D80240, D80253, D80043, D80227, D59859, D80196, D80188, D80219, D80269, D80038, C14429, D59889, D81030, D80366, D59502, D57483, D80022, D59275, D80045, D59610, D80024, AW178893, D80378, D50979, D50995, AW177440, C14389, AW179328, D59787, D80241, C14014, C75259, D80164, D51060, AI905856, C14331, D80134, D59467, AW378532, C15076, D51097, AW178775, AW177501, AW177511, AA305409, AW352158, D81026, AA285331, F13647, AW178762, AW352117, D80949, D80168, AW360811, AW176467, D51022, D58253, D80522, AW377671, AW377672, AA305578, AW375405, AW360834, AW360844, AW366296, AW360817, AW179023, AW375406, AW178905, AW378534, D80248, AW179332, AW352172, AW177731, D59695, D80251, AW352171, AW377676, AW179019, AW352170, AW179024, AA514188, AW178907, AW179220, AW177733, AW177505, AW179020, AW178909, AW177456, AW378528, AW179018, D80268, AW179329, AW178908, AW178754, AA514186, D80133, AW178906, AW178980, AW367967, AW179004, AW178911, AW178914, C05695, AW352174, AW178774, D80132, D80302, AW178983, T48593, D80439, D80247, AW177723, AW378533, D80157, D51103, AW367950, AA033512, AW178986, D45260, C06015, AI535850, C14975, AW378542, D80314, C03092, AW360855, AI525923, AI525913, AI525917, AA514184, AI535959, A84916, A67220, D89785, A62300, A62298, A78862, AJ132110, X67155, A25909, Y17188, D26022, D34614, AR025207, D88547, X82626, AR018138, AB012117, Y12724, A85396, AR066482, X68127, A44171, AF058696, A85477, I19525, A86792, AR008278, X93549, AB028859, U87250, A94995, AF135125, AR008443, I50126, I50132, I50128, I50133, AR016514, A82595, AR066488, AR060138, A45456, A26615, AR052274, D88507, AR064240, A43192, A43190, AR038669, A30438, D50010, Y09669, AR060385, I18367, AR066490, AB002449, AR066487, AR008408, AB033111, Y17187, A63261,

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HNGFU12	328	1128272	1 - 758	15 - 772	D80253, D80366, D59467, D59275, D80022, D58283, D80195, D80227, D51423, D80269, D80043, D57483, D80164, D80038, D59859, D59502, D51799, D80391, D80166, D59619, D81030, D80210, D80240, D59787, D80193, C15076, D80196, D59889, D80212, D80188, D50979, D80219, C14331, D59927, D80378, D80024, D50995, C14389, D59610, AA305409, D80045, C14429, AW178893, D80241, T03269, C75259, D51060, D58253, C14014, D51022, D80251, AW378532, AA305578, D80134, AW179328, AW177440, AW178775, D80248, D80522, AW369651, D51250, AA514188, D81026, D80168, F13647, D51079, D59695, D52291, AW352158, D80133, AW178762, AW378540, C14227, AW360811, AA514186, D81111, C14298, AW177501, AW177511, D80064, AW377671, AW375405, C14407, D80268, D80132, AI905856, D80302, C06015, AW352117, AW366296, AW176467, AW360844, AW360817, D80247, AW375406, AW378534, Z21582, AW179332, AW377672, AW179023, D80439, AW178905, AW360834, AW178906, AW352171, AW179024, AW377676, AW177505, AW352170, AW177731, D51103, AW178907, AW179019, D51097, AA285331, AW179020, AW178914, AI557751, AW178909, AW177456, AW179329, AW178980, AW177733, AW378528, AW178908, AW178754, AW179018, AW352163, AW178983, D80157, AW179004, T11417, D51759, AW378525, D59503, AW177728, AW178774, AW178911, AW378543, AW352174, T48593, D80258, D58246, AI557774, AW178781, D59627, D58101, D45260, AA809122, AI525923, AW177723, AW367950, H67854, C03092, AI525242, H67866, AW367967, AI525917, AW378533, T03048, T03116, AI535850, AI525227, D80014, AW178986, D59317, D45273, D51213, AI525920, D59474, C14973, Z33452, AI535686, C14344, D51221, AI525235, D59551, AA514184, AI525222, AI525925, AI525912, C14046, AI525215, AI525237, AW378542, AI525228, C16955, AI525928, T02974, C05763, AL050337, A62298, A84916,

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HWLKA89	329	1105515	1 - 940	15 - 954	AI823404, AA614088, AA720986, R67736, AA779031, AA165418, AA074907, AA485961, AA167191, W19842, AA533356, AA318991, T86894, AA983883, AI344817, AW079315, AI919593, AI335426, AI348777, AW161202, AA806719, AL040694, AI446809, AI468872, AI254597, AI565970, AI540754, C16221, AI634305, AA603709, AL120300, AI582871, AI565172, AI364788, AI866820, AI318280, AI590043, AI254042, AI873638, AI933992, AA761557, AA464027, AW151979, AI890628, AA715307, AI917963, AA809974, AI687166, AI801793, AI866469, F36308, AA748353, AI623622, H89138, AI802372, AL039390, AL036638, AL045500, AA769318, AI251221, AI336575, AI623736, AL110306, AL036631, AI627604, AI929108, AL039086, AW162189, AI610667, AI114540, AI433037, AL048323, AI866465, AI252023, AA464646, AL048340, AI568060, AW198075, AI963617, T99953, AL037582, AI869125, AL037602, AI573026, AI073952, AI345608, AW021373, AI524663, AI573093, AL119791, AA830821, AI433157, AI648567, AI554821, AW151136, AI539771, AW162194, AI802240, AI537677, AI494201, AI349598, AI890907, AI961589, AI500659, AA641818, AW089006, AI538885, AI345471, AW269097, AI470293, AI815232, AI801325, AI500523, AI538850, AI307285, AI887775,

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HLWBU48	330	1162653	1 - 1701	15 - 1715	AA142936, AI470176, AA150626, R76815, H08328, R75984, C16725, R27971, AI686059, AI650424, AA974022, AW206777, AW363128, AI524727, AI702823, AA286700, H58559, R28225, AI932949, AA806719, AI689420, AI805638, AI890057, AI866820, AI758512, AI917963, AI242248, AI537677, AI678446, AI251830, AI521560, AI281772, AW161202, AW131999, AI309306, AW104141, AW152550, AW059713, AI473451, AL040241, AW079334, AI345551, AI446373, AL036705, AL049053, AW082532, AI499986, AW083804, AI367210, AI432644, AW082623, AL040011, AW168875, AA070889,

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HWWEY71	331	1204720	1 - 2007	15 - 2021	AW411251, AW411250, AW411276, AI638143, AI653986, AW411277, AW411540, AL135023, AI609108, AW410822, AW411486, AW410724, AW410456, AW410516, AW410459, AW411541, AW410899, AW411176, AW411154, AI591086, AW411490, AI951452, AW411012, AI421521, AW249463, AI691054, AW248301, AW410898, AW410455, AI700140, AI950991, AW249523, AI635841, AA911634, AI632983, AW411487, AI887587, AW273145, AI817987, AW411013, AW082929, AW411175, AA576614, AA633317, AI597735, AI569538, AW069245, AW410821, AW410324, AI625764, AA743215, AW410238, AI560282, AI247281, AI554740, AA586625, AI653600, AW304985, AA911054, AI338283, AA165578, AI285121, AI340965, AI090753, AW411386, AW410935, N70336, AA640605, AW410389, AI341964, W73762, AW410460, AA643283, AW411387, AI313459, AW411155, AW411158, W44660, AA742919, AW247727, AW410722, AW411162, AA629927, AI126885, AW410517, AW410636, AW410637, AW410388, AA989313, AA410805, AI308864, AW386906, AI566847, AA313516, AW246735, AA636134, AA219137, AA728778, AA252291, AI350355, AW190316, AA564212, AA131090, AW410725, AA643582, AW410723, AW250287, AI318431, AW250477, AI268503, W73771, W04138, AA812321, AA323741, AA171436, AW246316, AI014771, AW411492, AA086186, AA912198, AA131143,

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HHFGD45	332	1151161	1 - 902	15 - 916	
HNHEB44	333	1161293	1 - 697	15 - 711	
HMACX92	334	1151497	1 - 1350	15 - 1364	AI953998, AI741818, AA573827, AI742027, AI344703, AI687918, AI738917, AI241423, AW058506, AI307806, C16636, AW293247, AI524349, AI913588, AA320459, AI971693, and AA581056.
HNTBW57	335	1193070	1 - 1629	15 - 1643	AI652691, AI673330, AW002530, AA442057, AI968753, AI748864, AA333366, AA368486, AA441944, AI696583, AI224373, AL048499, AI678833, AW083750, AI765323, AW023871, AW150778, AI801536, AL043152, AW263569, AA761557, AI872472, AA207067, AI689096, AW302708, AI815239, AI336586, AL042544, AW081268, AW302854, AI349944, AI537516, AW271119, AW080076, AW151451, AI538908, AW129947, AW190297, AI624475, AI345148, AI688959, AI886355, AI335209, AI334450, AW020381, AW268220, AL079996, AI351737, AI886055, AI285439, AI446567, AI677797, AI613548, AI491710, AI692941, AI694190, AI635528, AI349004, AW131112, AI568061, AI684285, AI432532, AI925281, AI560545, AI689614, R20540, AW150750, AI499104, AA643236, AL043089,

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HBSDC13	336	1105677	1 - 978	15 - 992	
HCWBX21	337	920486	1 - 434	15 - 448	AC034250.
HFRBW72	338	916944	1 - 666	15 - 680	AI526017, AC020876, AC020876, AC020887, AC020887, AC020887, and AC078913.
HSLJX23	339	1105530	1 - 483	15 - 497	
HSLJX90	340	1105297	1 - 424	15 - 438	
HAUAI67	341	1102604	1 - 924	15 - 938	AI990409, AI056896, AI200949,

					AI337884, AW104443, AW055339, AA911567, AA046828, AA932357, AI023297, AI125234, AA904609, AI733426, AW250547, AA910576, AI377004, AA046871, AI090522, AI791736, AI032574, AI140513, AI355194, AI146665, AA972188, AA985450, AA643701, N27384, N30911, AA938964, N58077, AA005074, H59617, AA505790, N57685, AI807795, N55023, N41842, AI078181, H59658, H75736, AI079135, AI672631, H13146, H90608, AI808881, H58325, H67713, AA807988, N32135, AA004517, N77541, AA705231, H13147, H83720, N64292, AW249886, H75871, AA460432, N56775, N30598, N77212, H58714, AW376655, AA368114, AA379597, H64100, AW376078, T96922, D60596, AA622435, H90512, T97029, AA263084, AW067367, AA864550, N56803, AA993476, AA922842, AA004600, D19848, AA968872, AA285312, U74656, and AF161499.
HDPTA89	342	953718	1 - 495	15 - 509	AA314553, AA442034, AA411279, W90647, AW408501, AA426192, AW404831, AW439303, AA337765, AR044460, AL096805, and U93242.
HMCBN45	343	927125	1 - 1033	15 - 1047	AI763246, AI142222, AA243784, AA683518, AI799788, AI123897, AA306113, AI139363, AA178940, AA585431, AA179031, AI128697, AA806862, AI245705, AI082068, AI697113, W31054, AA521489, W01944, AI799759, AI143831, AA991864, Z28358, AI306133, AI524377, AA355942, AI688376, AA622974, AI669951, AI291759, AA356387, AA129598, W52055, T55794, AA143357, AA693716, AI082052, AA354273, AI734980, AA384235, AI272802, W60600, AW151717, W26194, AA256518, AA761727, H57081, AI205579, AA676825, AI147942, AI935114, AI168491, AI867526, N29537, AI694140, T55364, N29540, AW175871, AI473097, N68501, AI696177, AA977687, and AW204367.
HTTJY18	344	1223495	1 - 2911	15 - 2925	AI557497, AI766034, AI346436, AI693265, AA625367, AW119055, AI160450, AI797257, AA044667, AA490784, AI017930, AI798116, AI991629, AW408108, AL134814, AI751104, AI671520, AA631316, AA767225, AW118565, AI692421, AI806219, AW404045, N34063, AA865477, AW444920, AI338294, N25707, AA478628, AI128490, AL135604, AA574142, AI807827, AA724644, AA156896, AI375320, N20622, AI681820,

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HMAJL09	345	1157337	1 - 581	15 - 595	AR007575, I18860, I18861, I55990, and I55991.
HSVCH37	346	558195	1 - 236	15 - 250	AB001632, I58533, I58528, AB015656, I58538, AJ004865, AF043731, D89094, L16545, and I58526.
HTOCG37	347	708888	1 - 339	15 - 353	AA190710, and AF079529.
HBXAW47	348	771624	1 - 668	15 - 682	AA028190, AI953574, AI738595, AA595667, AI221343, AI968102, AA600319, AA992363, AI473733, AA551102, AI138415, AA121435,

					AI275031, AI983106, AI088415, AI365652, AA121689, AI963252, H52938, AI969275, AI953081, N75666, AI952001, AW073176, AA888885, H91146, N64815, N64775, AA328950, AA034514, AI217079, AI143327, T83574, C15167, H91196, AW205484, C15450, Z41850, AA719852, AA767177, AW016668, AA237008, AA255832, T85600, AF095927, AF117831, AC016757, AC016757, and AC016757.
HBXAW27	349	909801	1 - 1816	15 - 1830	AL118753, AL118745, AA325952, T77115, R85173, AA984410, AA349408, R89744, R84547, F11722, AW374405, AA081372, AA338443, AW374437, H41707, R26621, R88015, AA985330, H38454, R88440, H38442, R88843, N94059, R88564, AB023167, J03137, M20636, L14323, U85712, U85714, U85713, AL137267, AL049632, AL050315, AP001501, and AP001501.
HSLJE54	350	926924	1 - 905	15 - 919	AA224020, AI909199, AI906604, AI906305, AF116547, AF116548, AF116545, X94152, M64755, AJ132661, E13557, AF116546, AF115343, and U74492.
HBXBG65	351	932780	1 - 521	15 - 535	R36281, AF094480, and AF094479.
HE8CG83	352	933609	1 - 1114	15 - 1128	R98819, H48501, AI431664, H48668, H48397, T89386, AB011178, and AB023624.
HOGCW55	353	953161	1 - 514	15 - 528	W25173, AA587912, AA353485, AA192483, AA463391, AA489306, H66607, T79491, T86627, AF113132, AL353594, and AL353594.
HNTND64	354	954871	1 - 392	15 - 406	AC025090, and AC025090.
HHAWC08	355	957942	1 - 1870	15 - 1884	AI860000, AI984180, AI052115, AW027098, AA507892, AI269682, AI860186, AA910656, AA911665, AI122607, AI982553, AI492064, AI148135, W56156, W60937, AA974459, AI419847, AA009421, N28887, AI673827, AI277360, AA740276, AA778158, AW250214, AA456771, AI034295, N35234, AW170157, N30305, AW247011, AW026104, H99254, AA654123, AA830800, AI141374, AI074187, W31386, AA524317, AI261816, AW403968, AA846516, N39743, AA480954, AI280981, W60872, AW073283, AA761349, AA683175, AI207047, AW236672, AW389139, AA009725, AW058117, AI073671, AI092406, AI085232, AI188288, AA113312, W15516, AA653970, AW352169, N95282, AA551600, W86394, AI084709, N78792, AI475205, N42029, N55379, AW001694, AI355933, AA181712, AA004431, N44897, H94052, AA699746, T48085, AA730615, AA112533, AA306422, AA342623,

					R38707, H80310, W38668, H06714, T51462, AW375770, H06763, AA302273, F13201, AA033586, H81887, W86393, AA687134, AI269924, AI933743, R89868, AA033585, AI863793, AA315202, R30828, AA772763, AA678198, AW375790, F10804, AW078473, N26380, H80311, AI159939, AI383032, AI300606, AI027171, AA310599, AA887439, AW403264, T75396, AA091936, R89830, N41533, AA810312, N77721, N58353, AI768718, R06623, W37176, H94132, R06681, AW449471, AA026195, AA026267, W24414, AA936706, AI033915, H81888, W07220, AA854111, AA826955, R79020, N43834, AW388723, N77385, N25010, AA879094, AA322203, AR009648, AL096870, AL096870, and AL096870.
HFPEN04	356	964824	1 - 527	15 - 541	AA019175, and AC018984.
HTZMB51	357	496523	1 - 387	15 - 401	AC078913, and AC078913.
HNHDK43	358	529500	1 - 384	15 - 398	
HTTDP32	359	558751	1 - 412	15 - 426	AW205029, AW205044, D21851, and AC006515.
HSLEP27	360	572920	1 - 606	15 - 620	AC073692.
HMTAL73	361	621705	1 - 646	15 - 660	AA166733, AI830198, AI279140, AI609203, AA314053, AA522698, AI683664, AI566177, AI471673, AI301177, AI366138, AA189176, AA581780, AI880224, AW188413, AW247288, AI760872, AW167604, AA575851, W40145, AA554369, AA766702, AA167013, AA993092, AI952254, AA341921, AA550829, AI189562, AA341834, AA994485, AI807966, AW084516, AI367411, AW166426, AI289088, AW276556, AW409580, AW168027, AI313164, AI126744, AA062738, AI005192, AI346778, AI886479, AI266434, AI373206, AI890694, AA599846, AA621441, AA425361, AA889086, AI290386, AI018456, AI139395, AA878656, AI090131, H68937, AA661827, H68968, AA425567, AI359753, AI272100, AI928276, AA745814, AA861972, AI681292, AW365639, F28763, AI366352, AI301277, F21634, F35882, R42221, AA679837, H30364, D19608, AI372963, AI039668, AA099413, AA976445, R00632, F29067, AI086538, AI300790, H24962, F37091, F35686, R00531, AA962826, AW148420, C75054, H25002, AI024081, AA746315, AL050094, U49283, AF046929, AL049712, AF023266, AF090322, AF023265, X82632, AF090321, AF090323, and AF090324.
HMHBQ53	362	715301	1 - 409	15 - 423	AA071216, AA399171, N28436, W37722,

					N34696, R47745, AA126615, N42988, H96178, R72207, Z42227, AW390760, AA595329, AA056310, AA017665, H50903, R84807, AA322022, AF135422, AC040991, AC040991, AC024009, AC024009, AC024009, and AC053503.
HBICG44	363	715860	1 - 391	15 - 405	AA812035, AA384254, AW072302, AI480195, AI885635, W72566, AA100912, W76560, AA877207, AI310696, AA781222, AW025204, AW025212, AA962214, AA923685, AI392859, AA576938, AA878505, AA872783, AI589503, AW403749, AA160087, H29768, AW005265, AI281977, AI339338, AI826904, AW248975, AW149620, AI356346, AI934471, AA058529, AW369482, AI352226, AA188326, AA974029, T60268, AA934427, AA480672, H38826, AI085778, AA773811, T68371, and D16294.
HSKXN70	364	753717	1 - 343	15 - 357	AA317681, and AC009320.
HPIAC32	365	815942	1 - 505	15 - 519	AC009960.
HHFFP57	366	835955	1 - 674	15 - 688	AW044463, W60505, W60589, R06820, R33763, T67154, AI819666, Z19472, AW138205, AI760947, AI766255, AA368618, AW242629, AI985540, AI479264, AA371505, AW194990, AA918910, AI913127, H91117, AI221898, AW418932, AI738505, AI092638, AI565356, AA903150, AW024878, H39065, AC005166, AC005161, and AC006392.
HFKJW01	367	836491	1 - 426	15 - 440	
HSDFL63	368	836498	1 - 675	15 - 689	AA382259, AI205666, AB015228, AL110299, AL110274, AB015227, AB015226, X99273, U60063, AL137418, AC012653, AC012653, AC015474, AC015474, AC015579, and AC015579.
HLDOO08	369	857070	1 - 571	15 - 585	T63822.
HMSHN43	370	867363	1 - 452	15 - 466	AA126615, N28436, W37722, N42988, N34696, H96178, R72207, AA399171, R47745, Z42227, AA071216, AW390760, H50903, AA017665, AA056310, R84807, AA322022, AA595329, AA326931, AF135422, AC040991, AC040991, AC024009, AC024009, AC024009, and AC053503.
HBXCT92	371	871044	1 - 1611	15 - 1625	AI800599, AI937500, AI660531, AA703831, AI798535, AI143649, AI632282, W58368, W58049, W22190, AI040925, AA102365, AA991764, AA587233, AI637675, AW177485, T78051, AW177468, AW177486, AA580025, AW177474, AW177465, AW177481, AW177466, R38705, AW177478, T90276, AW177472, AW177490, T82858, Z45650, AW177482, AA507077, AI359536, AW351990,

					Z24924, Z41323, AW351996, T75394, AA649500, AW177467, AW177484, AA322492, AI700227, F01614, AW177480, F00408, AA582198, AA905387, F31617, AW362684, AW177464, AA102364, AW365594, F05355, AW178432, C21034, F34596, AI970443, AA308943, and U38253.
H6EDP44	372	875744	1 - 976	15 - 990	AA573876, AI591002, AI832260, AI671469, AA744779, AF135421, Z66459, AC024888, and AC024888.
HLJBF94	373	875745	1 - 656	15 - 670	AF135421, and Z66459.
HTEHO28	374	877182	1 - 2209	15 - 2223	AI818600, AI247566, AI990846, AI247565, AI656342, AI034180, AI564798, AI263858, AI631389, AI363409, AI277926, AI248361, AW302269, AI949807, AA460989, AI242750, AI167441, AA910017, AA311916, AA707475, AA053363, AA702834, AW194767, R07745, R48470, AA374891, R48471, R07744, AI015726, AA948314, H99544, AI499115, AI565996, AW138866, AW070902, AI767271, H85099, AI420312, H80005, AA885289, AF133519, and AF171055.
HE9PC30	375	880696	1 - 1585	15 - 1599	AW444920, AI128490, AI991629, AI671520, AA631316, AI017930, AI798116, AA724644, AI927358, AI689872, AA574142, AA614686, AI806219, AI014617, AI970650, AI784526, AA478628, AI984819, AA772221, AA165612, N92776, AA488873, AA490739, AA837071, AI970640, AA831431, AA767225, AA491236, AW296841, AA480905, AA748764, AA765180, AA809901, AA521187, AA490749, AW139747, W19342, AA490784, AA732578, H42547, N64079, AA731475, AA928247, AA258932, AA737427, AA258818, AA807336, AA811989, AA490590, H84091, W19267, AI377900, AA165621, AW407878, W81357, R80972, AA491229, AW449400, AA766645, W19430, AA725290, H22250, R47909, AA156816, AA810117, AI867841, AA641916, AI337517, H43997, AA736770, AA808364, AA151369, AA805302, AA211896, C18400, R80959, AA371039, AA807032, AA018130, AA806391, AA889990, AA641971, N34097, N34063, AA091907, AI751105, AA480968, AA341059, AA648868, AA918628, AA714856, R01340, D82419, AF151834, AF161502, and U93243.
HLMDN29	376	881288	1 - 495	15 - 509	AP002520, AC023532, AC023532, AC023532, and AP001447.
HWBCF78	377	911355	1 - 446	15 - 460	X97650, and X70400.

HUKEN49	378	911465	1 - 513	15 - 527	AW361145, AA159854, W20422, AA161059, N54761, AA161002, AW385193, AI905632, W31874, AL133017, and AC023133.
HCUDS02	379	914401	1 - 1536	15 - 1550	AI659646, AI088615, AI871104, AI086630, AW084577, AI589869, AI809420, AI475555, AI972159, AI041028, AI023862, AA126615, AI560283, AI620853, AA126488, AI160486, AW339453, AA394146, AI950891, N42988, AA531289, AI240938, AA664348, AI092342, AA017665, AA056310, AI832557, AI359609, AA016273, AI422275, AI753785, AI969085, AA056205, AA569043, AL134103, AI374670, AI041533, AW379940, AA622636, AA524028, N27414, W37722, N28436, AI203196, W60573, W37723, AW390760, H41077, R84807, AA071445, R72207, N34696, AI935373, AA535307, W60664, AA595329, AI679775, AI354402, AI866325, AI453011, R59044, AI493743, H50903, AA326931, AA378229, AI656225, AA335411, AA399171, H96178, AA322022, R47745, H96179, AI341612, R70801, AI869130, AA010446, Z42227, AI524531, AW079482, Z38472, AA071216, AI970500, AW380313, AI857282, N46401, AA335607, N33327, R97069, AI086631, AA018645, AA059012, AI473953, AA377686, AF135422, AC040991, and AC040991.
HTTJU40	380	914402	1 - 482	15 - 496	AA017665, AA056310, AA378229, AA326931, AA126615, N42988, R84807, AW390760, N46401, AA322022, H50903, N28436, R59044, AI493743, R72207, N34696, AF135422, AC040991, and AC040991.
HFXJX41	381	915649	1 - 669	15 - 683	L34002, and AC034250.
HSLCK91	382	915650	1 - 387	15 - 401	AC074333.
HSLAO29	383	917349	1 - 523	15 - 537	AW411276, AW411540, AW411154, AW411486, AW248301, AW410935, AW410456, AW410459, AW410723, AW410388, AW410636, AW250477, AW410441, AW250287, AW410516, AW246316, AW410323, T74720, AW250611, AA171436, AA179614, F12758, AW411158, AW410722, AA348084, AW410275, H96758, AA323383, AA233215, AA328132, AW410237, AA356005, AA219520, AW411491, AW247727, AA102177, AA243309, N87314, U23143, X91902, L11932, Z62251, and Y12331.
HRDBJ38	384	917583	1 - 1854	15 - 1868	AI201634, AW206017, AA496215, AW237206, AI652106, AI147505, AA447906, AI338723, AI493188,

					AA196044, AA496216, AA581805, AA011198, AA011053, AA428183, AI433779, AA115500, AA115028, AA428394, N92785, AI073345, AA010801, AA553670, AI343410, AI814185, AA583159, W20514, AW002014, AA719860, AI800294, U53093, AW072769, AA995007, AA195789, AW387762, AI282057, AI659096, AI828007, H27138, W99384, AA722547, AA055124, AW338524, AA055044, AA055075, AA362890, AI445319, AA496217, AW130260, AA010773, AW084356, AI636404, AI701197, C03492, AA463574, F32683, AA055135, AW339018, AI682634, AA451938, AL046931, AW190297, AI567971, AI613144, AL047344, AI952217, AL038076, AI207454, AW150578, AW088145, AW020358, AI685211, AL038529, AI670984, AA481033, AI367203, AI349246, AW148865, AA176980, AI250627, AI873752, AI364620, AI287476, AF017152, AL137529, X51694, AL080231, AL137294, AF019298, AL096751, I89944, AF030635, AF079763, AF153340, AL133075, AL133637, S77771, AL133568, E08516, X70685, X72624, AL137259, I46765, AL133112, AF089818, AJ003118, AL122098, U75932, AL122050, AL122111, AL110296, X92070, A12297, AL137662, AF085809, AL137539, AL133636, AL049465, S78453, AL137523, X80340, E12580, AF125949, AB026128, S61953, AL080086, AF031903, AL137283, A47363, AF200416, AJ242859, I17767, AL133113, and AF057300.
HOUES64	385	918119	1 - 304	15 - 318	
HWLHU02	386	918520	1 - 589	15 - 603	AW451101, AI380194, AW450222, AI393033, W22012, AA152163, AI380397, AC027617, and AC027617.
HEAHA84	387	919363	1 - 1903	15 - 1917	AW382182, AI902876, H14269, AA069213, AI902670, AI902671, AI554050, AA832004, AI751613, AA808661, AI902672, AA252385, AA027143, AI418553, AA147428, N91972, AW374017, AI146668, AI339191, AA953704, AA996174, AI092938, AA826792, AA584264, AA995593, AA282039, AI140031, AA742515, AI187137, AW006944, AI333234, AI370584, AA807417, N76058, AA555194, AA071511, AA705743, AA229404, W51757, AI146915, AI216545, AA236960, AI357217, F30411, AI371338, AA610574, AA639822, W19829, W58451, R08131, N68046, AI023042, F27897, AA758142,

					T96941, AW270555, N59651, W52002, AA284884, AI022462, AA284615, AI250701, AI312520, N78659, AA026962, N70547, AI290890, AI566950, W76586, AW005072, W95678, W04465, AI274885, AA026455, AI860334, AI051085, AA026399, AI342191, AI346713, W05408, AI088659, AI090805, W15148, AI147701, AA236774, AA910393, AA804750, AA282382, AI570650, AI924762, AA149268, AA491249, AW117991, AI422705, AA046848, AA046810, AI031903, W72433, AI023043, AA083509, R07181, AW382267, AA574096, AA134304, AW074946, AA736750, N90580, AI282318, AW245981, AW245537, AI277699, AI420748, AI735260, R07208, AI880658, AI143585, AI051142, AA887653, AI268051, AI709253, N91924, R11231, AA742573, AI026809, AA280277, AA877021, AI708293, AI708235, AA777052, N32046, AI619984, AI282753, AA527394, H54880, AI364309, AA129245, AI889861, AI290693, AA452484, T39397, W58486, AW074077, T80989, N57907, AA642592, AA643025, T97344, AA247232, AI880663, AA316267, W00810, F28809, AA324010, AA127148, AA134303, AA151350, AB018270, AC002119, X71997, AF161448, AF077202, AL031729, and Z82206.
HBMXQ90	388	922114	1 - 449	15 - 463	AA149171, AI984559, AA934684, AA503779, AA808602, AA570036, AW073912, AA973597, AA704134, AA374289, AA832230, AA651931, AI826677, AA102091, AA149172, AA715137, W44955, AI984459, AI263829, AI377362, AA099896, AI471344, and AC024247.
HOEJV72	389	930778	1 - 833	15 - 847	AI378980, AA354580, AW401983, W24109, AF153191, Z99758, and AF202048.
HRDBH58	390	933364	1 - 2621	15 - 2635	AI863355, AI863364, AI674922, AI754389, AI056058, AW295190, AI623178, AW131720, AI949042, AI056059, AA356949, AI668970, AA620354, and AA159456.
HCE3E13	391	951413	1 - 677	15 - 691	AC004211, AB023048, AP000511, AC005937, AB023048, AB023048, AC004211, and AC004211.
HUKFO68	392	951652	1 - 1166	15 - 1180	AW194769, AW271679, AI949849, AI339520, AI492487, W81116, AI457416, AA702464, AI309557, AI278874, N69263, W87406, AW300667, W78764, AA494373, R11650, W00816, H90588, AA150009, AA877626, AI559893, R10051, AI470605, H90495, AA309160, AI473983, AI473532,

					AC027617, and AC027617.
HFXJW08	393	959204	1 - 676	15 - 690	AC026761, AC026761, and AC009091.
HBTAD04	394	407351	1 - 477	15 - 491	A31765, and A31767.
HE8FG51	395	465267	1 - 527	15 - 541	AA393505, AI024045, AA398573, AA309852, and AA399121.
HTPDU31	396	503077	1 - 352	15 - 366	R20319, AA322955, and Z83844.
HMUBV12	397	549423	1 - 352	15 - 366	AA085250, AF040710, AF036035, U73167, and U90094.
HMHBS90	398	574062	1 - 604	15 - 618	AW381702, AW381701, AA677535, AA223851, W67779, AA429201, AA770162, W23198, W85753, AW246223, T84043, H62758, AF113544, AC021059, AC055734, AC013626, and AC013626.
HLHGH34	399	575733	1 - 784	15 - 798	AI056280, N31314, AA399591, R95732, AA224343, AA399001, AL120264, AA699899, AJ223333, AF045888, and AF012128.
HELHC55	400	577384	1 - 202	15 - 216	AC016544, and AC051617.
HKAAZ66	401	592105	1 - 658	15 - 672	AL119973, AI751411, AA375863, W53027, AA159906, M23254, D38117, L09120, AF015038, Y10139, and J04700.
HHSCN33	402	657367	1 - 394	15 - 408	R87212, H15245, and AB002320.
HNGJQ15	403	660310	1 - 354	15 - 368	AF132607, AB006626, AC022705, and AC017028.
HDJME16	404	661396	1 - 474	15 - 488	AL046450, AA343865, and AF135440.
HNTNR64	405	670033	1 - 453	15 - 467	AW161063, AL161790, and AL161790.
HMICO24	406	677036	1 - 337	15 - 351	AA913929, AF123320, AP000350, AC010925, AC010925, and AC010925.
HSIAC23	407	679292	1 - 446	15 - 460	H14396, R19960, F11251, R12516, AA376792, AF095286, AF019638, and AB033084.
HSLFL74	408	685897	1 - 1332	15 - 1346	
HSDJD53	409	698259	1 - 611	15 - 625	
HCEBF33	410	702955	1 - 897	15 - 911	R20250, N57610, R20853, and AA321932.
HAPQW27	411	705518	1 - 419	15 - 433	T79494, H45923, AA430536, AW391923, AA453511, N76754, R99213, AA478000, R07932, AA635101, H24791, and AF059202.
HCFLZ28	412	707183	1 - 533	15 - 547	AA135288, AW245881, AW247020, AW250562, AA236737, AW246286, AA176210, AI972465, AA564581, AA380625, AA219293, AA054656, T73385, AW247374, AF110956, AF090385, AF161489, and AF046025.
HWCAB58	413	710377	1 - 436	15 - 450	AA340789, AC006059, AC006059, AC006059, AC006059, AC022064, AC022064, and AC022064.
HLMMC57	414	713770	1 - 520	15 - 534	W68048, AA864219, AW083109, AA719473, AI291666, AI241237, AW128951, AA676817, AA128261, F20824, AI248718, AI300073, N67989, AI421727, AI248154, AW079370, AI356839, AI280526, AI972420, AW166361, AA652925, W24384, H47029, AI312665, AA152319, AA121942, N69898, AW263672, AI245203, AI243886, AA070091, AI083558, AI242032,

					AA443449, AW236290, AA128283, F33522, AW452471, AA364904, AA953547, N95310, AA780205, AA836940, AA746621, H78682, R50746, AA970711, AA722298, AI674504, T61119, AW270316, AI537566, AA976774, T35526, AI311789, AW264832, AW104207, T05091, M85953, AI266353, AA709318, AA443314, AA757796, AC007421, and AR060348.
HMELH37	415	717556	1 - 546	15 - 560	AA412320, AA111940, AA026041, AA057628, AW327417, AA578622, AA304666, AA322871, AI364479, AA164328, AA053775, AA256056, W17025, AJ011307, AL050109, AF112207, AJ011305, AJ011306, X75451, Z48225, M98036, and M98035.
HNGJI55	416	722240	1 - 290	15 - 304	
HHGDG42	417	724795	1 - 346	15 - 360	W68048, AA676817, AI248718, AI356839, AI248154, F20824, AA719473, AI291666, AW079370, AA864219, AI421727, AI300073, AI972420, AI280526, AA128283, AW166361, AW128951, AA652925, N67989, AW083109, AI241237, AI312665, AA152319, N69898, AI243886, AA070091, AI245203, AW263672, AI083558, AA443449, AI242032, AW236290, AA121942, F33522, AW452471, AA128261, AA364904, AA953547, N95310, AA780205, AA746621, AA836940, T35526, AC007421, and AR060348.
HMTMF31	418	731302	1 - 412	15 - 426	AI908495, AI908497, H06611, Z44955, AA884619, AC022275, AC020632, and AC020632.
HSDIF59	419	739212	1 - 738	15 - 752	AC022123, and AC022123.
HNDAG60	420	751953	1 - 433	15 - 447	AI909320, AA211037, AL135260, AA308190, AL078644, AJ012449, AF161553, AB020657, AL356273, AL356273, AL356273, AL078644, and AL078644.
HSLDS79	421	753247	1 - 1643	15 - 1657	
HFBCQ61	422	769102	1 - 232	15 - 246	T05065, AC022886, and AC022886.
HRACD17	423	769103	1 - 372	15 - 386	AA195509, AA913929, AF123320, AP000350, AC010925, AC010925, and AC010925.
HLDQV23	424	788957	1 - 492	15 - 506	W67622, R15231, H29786, Z45968, AA134647, AW070475, H29341, R17825, Z44449, R18068, F08575, AA311176, AA338915, and AI091322.
HPHAF45	425	812327	1 - 372	15 - 386	AA086182, AF160757, AA332331, and AC006963.
HSUME31	426	812373	1 - 559	15 - 573	AA380193, AA805469, AW410817, AW205922, and AI341441.
HUSHB56	427	815819	1 - 400	15 - 414	
HTGDN81	428	824708	1 - 1730	15 - 1744	
HSKHY26	429	836598	1 - 558	15 - 572	Y08565, and AJ133523.
HKACD80	430	837698	1 - 681	15 - 695	AW239293, R67182, R57498, R38144, and

					AI525934.
HHFDK48	431	837782	1 - 615	15 - 629	U46280, and R20122.
HE9SS77	432	838043	1 - 712	15 - 726	AW192470, AI909676, AW452409, and AB029000.
HAPOK49	433	848205	1 - 2350	15 - 2364	AW167677, AA115266, AW367477, AA115290, AI479820, AI921740, AW264587, AI984188, AA921909, AI720535, AW009676, N52232, AW264571, AI288254, AI720091, AI469825, AI343723, AI340165, AI369205, AI540180, AA731094, AA284102, AA190585, AI130714, AI601156, AI318418, AI356057, AI285088, AA868295, AI222845, AA862416, AI125965, AA232911, AW376890, AW205479, AW367453, AW367505, AA627639, AI436765, AI001925, AW007969, AA587445, R89279, AA565341, AW028591, AI291010, AA151416, H61720, AA151435, AI220654, R89280, AW376858, AA416869, AW376856, AW367598, N57366, AA858414, F28955, AW377075, AI383330, AA933642, AW376981, AI280477, H61924, AA353824, F11283, N29431, AA626138, AI499314, AI174282, AA907328, AI280458, F17912, AA078177, AA078636, AI434747, F34447, N73199, AA357542, AI355066, AA723820, AI193175, AL043355, AW151136, AI269862, AI868931, AL119863, AI288305, AI364788, AI539153, AI473451, AI872423, AI272065, AI670009, AI624154, AL045500, AW301505, AL121014, AI815232, AI863382, AW071417, AI699865, AW023338, AI433157, AW268253, AW161156, AI494201, AL045163, AL045620, AW082113, AI654672, AW117743, AI684265, AI340627, AI457369, AI866820, AI889147, AI619502, AI433976, AI312428, AI620284, AI358701, AI802542, AI539771, AI340603, AI537677, AI500659, AL036631, AI587114, AI801325, AI500523, AI538850, AI800453, AI610362, AI284517, AI500706, AI564719, AI445237, AI491776, AW151138, AI564749, AI500662, AA715307, AI590120, AA809974, AI633493, AL049085, AI610645, AW074869, AI580674, AL039276, AW026882, AI630928, AI648684, AW303089, AW302965, AA640779, AL039086, AW411310, AW020693, AI349645, AA572758, AI433037, AI309401, AI955117, AW169671, AI343112, AW089572,

					AW301300, AI349598, AW087445, AI890806, AI538885, AW075207, AI625079, AI560099, AI433034, AI345735, AI813905, AW263355, AI480118, AL036980, AI349772, AI307210, AL119791, AI800433, AI313320, AW302992, AI355779, AW168650, AI312146, AI312339, AI284509, AI889168, AI345258, AI554821, AL036664, AI611348, AL041772, AL043981, AI866798, AI431424, AI311604, AW105601, AI923989, AL121270, AI567993, AW083804, AI567612, AW188539, AI888621, AI587056, AI872545, AI866573, AI620639, AI439717, AI064830, AI888661, AL036403, AI340519, AL110402, AI582932, AI371228, AI610799, AL110306, AL036274, AI521560, AI889189, AA641818, AI569945, AL045266, AI872300, AL048323, AW117882, AI434256, AI805769, AI929108, AI284513, AL042745, AI888118, AI682798, AI859991, AI440252, AI432666, AL041150, AW409931, AI348854, AA761557, AI572787, AI349226, AF155099, AC005486, U27462, AC007590, AP000069, AF108083, AL110225, I48978, AL133080, AL117649, I89947, Y11254, A08916, AL122123, U42766, AL122049, AF113699, I48979, AL050024, AF215669, Y09972, AR020905, X83508, A08910, AR038969, AF113691, AJ000937, A08913, I89931, AL117457, I49625, AL133098, U49434, AF097996, AF118090, AR059958, AF079765, AR038854, AF090943, AL049452, A08909, AF087943, AJ238278, AL050277, S61953, AL117583, Y10080, AF113694, AF090901, AL050116, I66342, AL133568, AL133072, AF100931, AL133093, AL049430, I03321, A18777, M30514, AL023657, AL050146, AL050155, Y07905, AF078844, AF091084, AL137557, AL133640, AL133081, AL137538, S78214, AL050149, AL137488, AL133606, AF061573, E07361, AF210052, AF090903, AL050108, AF177401, AL080148, AL122110, A65341, Z82022, AL133016, AL133077, AF158248, Y16645, AF118064, AL110196, L31396, AF146568, AL049464, L31397, AF106862, AL080060, AF113677, AL122050, AL137459, AJ242859, AL133557, AF026124, AL133075, AL117394, I00734, AL050393, A58524, A18788, A58523, U00763, X84990, AL117585, E00617, E00717,

					E00778, AL137527, AL137533, A21103, AL049466, AL049283, I33392, X70685, AR029490, AL122106, E02349, AF079763, AL117460, AL110221, A08912, X63574, D83032, AF028823, U91329, AL117435, U78525, I09360, AL133558, AL137271, AL049314, AF111851, A08908, AL110197, AF125948, AF113013, AL133560, AF113690, AF113019, E03348, AF017437, E06743, AF113676, AL096744, AL122093, AL133565, AJ012755, AF104032, AR011880, AB019565, AL080159, X92070, E07108, AF125949, AF061981, AL122118, AR013797, AF030513, Y08769, A77033, A77035, X72889, AF017152, Y14314, E08631, S68736, AL050092, AF061943, AF081195, L19437, AF118070, AL137478, X80340, AF162270, Z37987, AF061795, AF151685, AF090896, AL133113, E12747, AL122121, X96540, AL137476, AF067790, AF090934, E05822, AL049465, AL137550, AL137479, AL080124, X81464, S75997, X82434, AL133665, AL050138, E02221, AL137429, AF113689, AL137526, AL049938, Y11587, AF132676, AL049382, AF061836, AB007812, AL122100, AF090900, AL137273, AL080137, AL137521, AL080074, AF032666, AF026816, AL080086, AF067728, X87582, AF111849, M86826, A93350, I09499, U68387, AL133014, AL110222, AL110280, AL137463, AC002467, AL133104, AF003737, AF118094, AR000496, U39656, AL137648, AL117440, L30117, X93495, AL117432, AF102578, X98834, U88966, AF126247, AL049300, AL137705, AL133010, and AC011953.
HPMGN48	434	848318	1 - 949	15 - 963	AI446455, AW131349, N85000, AW188484, AI963263, AW072073, AC008686, AC008686, AC008686, AC017030, and AC017030.
HUVHP54	435	849278	1 - 1256	15 - 1270	AW360965, AI765501, AA112034, AW271852, AL036039, AA316041, AI951240, AA211024, AW188545, AL036038, R26717, R26941, AA317168, AI982523, and AI417583.
HSLDK59	436	853385	1 - 1662	15 - 1676	D62415, D79536, D62440, T03269, AI905856, AW178893, D58283, D59859, D80022, C14331, D80166, D80195, D80193, D59927, D51423, D59619, D80210, D51799, D80391, D80164, D59275, D80240, D80253, D80043, D59787, D80227, D59502, D81030, D80134, D80212, D80196, D80188, D80219, D59467, D80269, D57483, D80038, D80366, C14429, D50979, D59889, D50995, C15076, D59610,

					D80378, AA305409, D80024, AW178775, AW177440, D51097, AW179328, AW378532, D80045, D80241, C14389, D51060, AW352158, AW352117, C14014, C75259, AW178762, AW177501, AW177511, D58253, D51022, AW360811, AW366296, AW176467, AW375405, AA305578, D80132, D79530, AW377671, AW360844, AW360817, AW352170, D80251, D81026, AW375406, D80248, AW378534, AW179332, AW377672, AW179023, AW178905, AA514188, D80522, AW367967, AW352171, AW377676, AW178980, AW177731, AW178907, AW179019, AW179024, AA514186, D80133, AW178906, AW177505, AW177723, AW179020, AW178909, AW177456, AW179329, AW177733, AW378528, AW178908, AW178754, AW179018, AW179220, D80268, AW352174, AW179004, AW178914, AW178911, D80302, AW178774, D80439, D80247, T48593, AI535850, D51103, AW178983, C14975, AA033512, AW367950, AW178986, D45260, X82626, A84916, A67220, D89785, A62300, A62298, Y17188, A78862, D34614, D26022, D88547, AJ132110, X67155, A25909, AR025207, AR018138, AB012117, A85396, AR066482, A44171, A85477, I19525, A86792, X93549, AF058696, Y12724, AR008278, AB028859, I18367, D88507, AF135125, A94995, U87250, AR066490, AR008443, AB033111, AR066488, A82595, AR016514, D13509, D50010, AR060138, A45456, AR064240, A26615, AR052274, U87247, Y09669, AR060385, AB002449, AR008408, AR066487, A43192, A43190, AR038669, AB023656, U79457, AR060133, X93535, and AR008382.
HMWDI41	437	854051	1 - 634	15 - 648	AA985190, AA283143, Z19146, AA371530, and AA371532.
HFVHU73	438	856165	1 - 359	15 - 373	
HMUBJ80	439	858497	1 - 592	15 - 606	AA286791, AI671208, AC004466, AL117455, AF207749, AF207748, AF006602, AC004466, and AC004466.
HE9ML74	440	859297	1 - 2102	15 - 2116	AI141536, AA716179, AI638212, AI769556, AI963758, AI761109, N24244, N49976, AI890512, AA888851, AI204229, AI492301, AI399665, AI684997, AA397545, AW452929, W58540, AI308244, AW167166, AI032858, AI990115, AI191763, AI687674, AI356174, AW237523, AW237513, W05191, AA825680, AI628442, AW051464, AI955375, AA446754,

					N45103, AI768999, AI623958, AA844351, AW072581, AA877508, AW272007, AI434348, AI991466, AI367528, AI419248, AA757020, AI769025, AA112631, AA441882, AI990676, H12678, N31202, AI457681, R53677, W58506, AA923689, AA113334, AI632857, N28982, AI917528, AI357469, AA432070, AI241039, AA730921, AI391527, AI969586, AA761119, H75496, R23846, AI584086, AW194837, H05294, H05344, AA732634, AA305435, AA353992, AI244139, AA630054, AA385220, AA513775, H98911, R63556, AA844045, D62444, AA251162, AA334217, AA441821, H68149, AA399063, N74346, R12743, AW198016, AI867622, R39795, AA251128, AW409654, N72430, AI474839, C00849, AI499364, D79370, R53565, R63511, N52755, AA860414, AI026093, AI829446, AA513776, AL110222, and AB032957.
HLQAJ01	441	864092	1 - 362	15 - 376	AL133500.
HSLDP32	442	866241	1 - 477	15 - 491	
HPMEG40	443	866272	1 - 644	15 - 658	
HRADE27	444	867195	1 - 535	15 - 549	AA809467, N50856, and D87455.
HTXQR10	445	869137	1 - 553	15 - 567	AA308909, H39234, H86515, H86668, and AA053340.
HEQCB27	446	871062	1 - 414	15 - 428	
HE8AM04	447	871156	1 - 506	15 - 520	AA378845, AA332652, AA331633, AL031774, AL031774, AL031774, AL138825, AL138825, and AL138825.
HSLHT48	448	871996	1 - 832	15 - 846	AC024580, AC020865, and AC026761.
HS2SH70	449	875870	1 - 1002	15 - 1016	AI159768, AA311553, AA313233, AA336308, AI916593, F08346, AW269297, AA376331, AI651236, AI968341, AA374806, AI650685, AA781008, T99283, and AL133500.
HAOAE45	450	876157	1 - 460	15 - 474	AA214170, AA313857, and Z98048.
HELBA42	451	878549	1 - 1000	15 - 1014	R54355, AA311209, AA357633, AA471387, AL050269, AC016888, and AC016888.
HSPBB15	452	878791	1 - 943	15 - 957	AI741739, AI034449, AW167538, AW449121, AW450678, AI025866, AA052927, AA324019, AI914219, AW449405, H84106, H84348, AA954604, AA772473, AA862600, and X94769.
HTAFF91	453	879399	1 - 417	15 - 431	AL353658, AL353658, AL353658, AL121829, AL121829, and AL121829.
HETHB58	454	879640	1 - 2091	15 - 2105	AW137688, AI026819, AI755198, AI184220, AI628600, AI138494, AA719354, AI632957, AI654050, AI452505, AI745411, AI828312, AI954024, AI668845, AA135154, AI361008, AI968355, AI273657, AI457540, AI381674, AL041951, N50974, C18929, AA630633, D61531, R62626, AA621743, AI244542, R62679, AA781904;

					AA988504, T50419, AI956011, AI391525, T06212, AW050542, AI420318, T50550, AC023226, AC023226, AL160314, and AL160314.
HGBCU40	455	880328	1 - 612	15 - 626	AA160076, and AA358669.
HE9PR39	456	882939	1 - 658	15 - 672	AA205757, and Y11342.
HTEAF36	457	839516	1 - 416	15 - 430	W58006, AI668926, W58089, AI831877, AA743829, AI686118, AL137970, C00300, AI084277, AA382444, and AP000500.
HTLGW66	458	883855	1 - 1071	15 - 1085	AA101045, AA327432, AL120125, AA064706, AB006626, and AF132607.
HPJDV95	459	888844	1 - 2242	15 - 2256	W87845, AA306733, AA436941, AA317242, W68443, AL043085, AI904583, AI904581, AA852968, AA055870, R18042, AA331908, R85004, AW374823, AA333573, AA496029, T60187, R67194, AB002315, AC007956, and AC007956.
HCROF75	460	889436	1 - 605	15 - 619	H50475, AW365306, H19076, AW005455, AI936813, H52856, AI889218, H46135, H21233, AI222424, AI761295, AW182628, AA808804, W31107, AI159900, AI678906, AI086009, N27033, AA134923, AI095908, AI040775, AI183540, AI040378, AI021891, AI086517, AA375766, AI274905, AA641834, AA862389, AA746211, and AI280044.
HDPAP15	461	909703	1 - 2166	15 - 2180	AW363530, AA769683, AW297818, AI686368, AI313505, W30752, AW402208, AI693613, AI339571, AI278375, AI768004, AA489015, AI796758, AA716376, AI082543, AA911940, AW051481, AA017455, AW449905, AI366820, AI221259, AI769222, AI696801, AI366823, AI272115, AA426161, AA489109, AI806229, AI863884, AW237823, H87695, AI183323, AI374867, AA282415, H43142, AW293509, AW173784, AA424867, AA935247, D80190, AI806408, AA225692, AA515396, AW149310, AW304299, H87188, AA419564, H86462, AI351454, AA259172, AI434313, H01784, D62871, AA295452, H42376, AI221615, H98189, AW242071, AI272114, R22945, T84810, AI674970, R72115, AA352436, AI291670, AA934569, AI371982, AA382970, H01035, AA282518, D59531, R23051, R08439, AA345737, T98710, AA368953, AA970076, AA661764, AI798755, AC009830, AC009830, AC009830, AL162427, AL162427, AL162427, AC027143, AC027143, AL137067, AL137067, and AL137067.
HTGDH34	462	896571	1 - 465	15 - 479	AA481051, AI094999, AL038641, N49766, AI564452, W72950, AI267675, W37899, AI267676, AI074405, AA806997, AI005357, AW337923, AA843699,

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HPDEH29	463	914591	1 - 1435	15 - 1449	AI935632, AA402720, AI709055, AW084124, AA627919, AI831270, AA402591, AI811503, AA644399, AI445401, AI471201, AA665605, AI888538, AW080451, F33042, AA534885, AI021955, T86794, AA468899, AI004832, AW167133, F01092, AA284738, AI583070, AI749970, AI749946, AI720993, R76005, AA385796, AW003861, AW337335, R09139, R09140, AA001985, T86699, AW374796, D45581, AW192120, AA367310, AC008655, AC008655, and AC008655.
HDPVG08	464	914973	1 - 2014	15 - 2028	AI627790, AI741400, W72452, AA778159, AA194722, AA805345, AI373857, AI204191, AI022197, AA195584, AI553921, AA195563, AA004370, AI037896, AA635921, AW271198, AA492510, AA194881, AW118173, AI394194, AI682195, W76301, AI057227, AL048308, AA304861, AI342429, AI096823, AA907944, AI091156, AW291961, AW173129, R46385, AI140762, AA417561, AI093670, AA704940, AW365963, AA129549, AA406087, AI123723, AA668599, AA953993, R73452, AA194960, AA136563, Z43870, T54090, AA411707, AA298099, T19123, H28868, AA460021, AA460001, Z39936, Z42582, AA969509, AA449930, AI351924, R21338, AW089362, AA004371, T54181, AA298160, AI689119, AA298004, R54735, AA482809, AW316904, AW342055,

					R57434, N86879, N56887, and AW078836.
HFXDW32	465	916095	1 - 873	15 - 887	AC074221.
HSSCY03	466	916445	1 - 2347	15 - 2361	AA858038, AI278444, AW166254, AI089805, AI077339, AA609667, AA610024, AA133632, R87843, AI199745, AA872570, AA825681, H03080, AA609687, AA135073, AI201686, AA633362, AI222648, R87365, AW005515, AA351230, C75670, R50048, W68513, H42549, H58008, AI301225, H42548, W68398, AI016159, AA358949, H44248, AW005743, AA632352, R48718, R87765, R85937, AW068671, AA001245, H03079, AI161348, AL119441, AW082316, C75560, AA133719, R53611, AA351229, R76433, AW188875, H15000, H51693, R17019, AA826431, AI039127, AI906284, AA811218, AA505814, and AA323280.
HFXFI49	467	916758	1 - 868	15 - 882	
HTLGH72	468	917526	1 - 1379	15 - 1393	AI972354, AI096541, AI423387, AA609519, AI927862, AW195104, AI823615, AI288221, AI807180, AA316295, AI640600, AI261219, AI469049, AW058491, AI018335, AI769865, AI915835, AW271578, AW020817, H08156, AI453623, AI123197, AI253074, AI521750, Z39699, AA947467, AW292014, AW272325, AI935784, AI439135, AW299954, AI860941, AA401192, R55759, AI384091, AA095581, AI470610, AI436596, AA749110, F06683, AA442605, AI767624, Z20396, H08256, R55838, AI498302, AI133156, D38736, AJ242973, U37150, and A74814.
HSUAE63	469	917758	1 - 2420	15 - 2434	AI609524, AW250309, AI246301, AW406806, AI475247, AW408563, AA307223, AA180537, AA121585, AA191172, W90183, AA349824, AA644643, AW245693, AA864530, AA100539, AA722494, AA190357, AW444911, AI902972, AI341712, AA552157, AA468624, AA375634, AA182594, AA653173, AA730865, AA353210, AA189069, AA669478, AI907834, AI473851, AA662700, AI354243, AA570632, AA182569, AA100540, T16427, and AA179752.
HAPTQ56	470	918920	1 - 1388	15 - 1402	AI253192, AI913253, AI597595, AA713495, AA972065, AA135967, AI928486, AA621901, AI261821, N87925, AA767100, AA427998, AW375405, C14331, AA514186, D80188, D58283, D59275, AW366296, D57483, D80253, D80166, C14014, D51060, D80024, AA305409, C14389, D59859, D80043, D80366, D51799, D80248, D51423,

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HNFIF54	471	919034	1 - 640	15 - 654	A87678, and A87679.
HSDFF02	472	920435	1 - 439	15 - 453	
HE8NS06	473	921076	1 - 2033	15 - 2047	AL135389, N39522, AI276138, AA411650, R98806, AA411649, AI042194, AI337108, AA054180, AA195591, T85097, T91419, N75694, H62591, AA194887, T91333, H48536, H38810, N74637, AI083552, T84163, T07150, H62525, AI735438, AI735446, AA766914, H74206, N27321, AA743618, R27509, AW340758, AL119233, and U57317.
HASBA77	474	921365	1 - 491	15 - 505	N31364, AI621052, AI769770, AW450861, AI949556, AL038600, AI745266, AA693948, AW007238, AI656830, AI949554, AI278155, AI082864, AI697566, AI276252, AA868983, N75642, AI262986, AI991987, W92774, AW166436, AI097203, R06709, W92876, AW292727, AI939449, AI421460, and R06710.
HSKDP26	475	921831	1 - 484	15 - 498	H86371.
HMTAY52	476	921948	1 - 1080	15 - 1094	R96413, AA128507, and AA317716.
HSDJG01	477	922453	1 - 1113	15 - 1127	AA555023, AA813457, AA909776, AA869005, AI139751, AI336946, AI217452, AI952680, C74997, AI201128, R59507, AA905126, AA075057, AI301766, AW003911, T53623, R42081, AI383369, R55155, AA937192, AB027289, AC004919, AC006978, and AI269614.
HHEPF30	478	928000	1 - 3573	15 - 3587	AI743864, AW300442, AI591385, AI478201, AI582609, AA452009, AW290877, AA451621, AA434546, AW271285, AW383863, AA442095, AI806128, AI480423, AA608829, AA034199, AI862157, AI131164, AW029491, AA682451, AW044224, AI057300, AA677424, AA442206, AA441995, AI472204, AI446604, AI457332, AI199799, AI753877, AI208374, AI824310, AI094191, H58012, H90975, AI198069, AW369317, AW369300, C18321, AI702911, AW263671, AI281017, H91763, AI446442, D62486, D56548, R82655, H57920,

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HTLAB16	479	929948	1 - 1219	15 - 1233	AI743990, AI589677, AW117688, AA418209, AA293017, AA393552, AI671530, AA969969, AA868456, H05646, AA836313, AW263156, R34733, AW206863, R72891, H06920, AI638884, Z38689, AA280165, AA552211, H05647, AI424304, AI399693, AI685889, R49606, Z42496, AA566051, AW237268, AA400796, AI468780, AA621751, D60125, AW237328, AA651719, AA280537, AA628052, AI621125, AI365113, AI590631, R73367, AW370133, AC006171, and AL161645.
HOHCW42	480	930431	1 - 2705	15 - 2719	AL043762, AW374309, AI949368, AL047031, AI332936, AI753437, AL043761, AI082843, AI312951, AA596042, N66287, AA581864, AI337817, AI299957, AW176442, AA765272, AW151047, AA291256, AI204155, AI554941, AA284827, W21878, AW086203, AA284599, W32883, AA483805, AW080656, AI940303, D20050, AW236117, AI682915, AI800557, AI681601, AA832340, AI434035, AI640406, R18659, AA814818, D56944, AI909818, AW007421, AA768400, R41617, AI207292, H75906, AA344824, AW176252, AA349027, AA621492, AA308412, AA256261, AA281377, N44874, D56639, W56903, AI909816, AA502707, N57000, AW008679, N54314, AA626136, T28028, H75770, W32882, AI474693, W03296, N93433, H73523, W21476, N69401, H73120, AW367173, W92106, AW176422, N69534, W91977, AA725537, AA769874, N91429, AA016014, D13635, and AC004975.
HCHNX75	481	931615	1 - 782	15 - 796	AI741581, AI740580, AI751819, H23375, AA447023, W07434, and AW384800.
HBCBA92	482	933093	1 - 1344	15 - 1358	AI669658, W37286, AA622993, AA889998, AA652524, AI951241, AI683166, AI190493, AI034155, AW134760, Z40556, W37799, AA582929, F07091, T34272, F03366, AI652867, AI633848, AW003296, AW237222, AA903642, AI018678, R74239, R73148, AA633426, T31774, AA654034, AA228976, AA650139, AA654185, Z44729, AA312286, R45964, AA230048, AA535847, R19584, AI969818, H55437, AI565509, T16398, H55442, R53774, H55243, AA779609, N40124, N42225, W44890, Z93241, AL022316, and

					AF151854.
HHFJI31	483	933110	1 - 596	15 - 610	AA227572, AA251468, AA295399, AA332220, AI672033, and AJ242739.
HTXNN68	484	933670	1 - 951	15 - 965	AA147402, AA287304, AA905465, AI362039, N32677, and D86967.
HWWFW06	485	933671	1 - 880	15 - 894	AA287304, AI418151, AA885205, N32677, AI630898, AA147402, AI362039, AW075796, AA905465, AL134533, AW392670, AL134531, AI142139, AL119418, AL119483, AL119319, AL119443, AL119324, AL119522, U46350, AL119457, AL134920, AW372827, AW363220, AL119484, AL119391, AL134538, AL134902, AL119341, Z99396, AW384394, AL119497, AL119363, AL119355, AL119396, AL119496, D86967, AR069079, AB026436, AR066494, AR060234, and A81671.
HE2SY77	486	934771	1 - 325	15 - 339	AC010552, AC010552, and AC008826.
HSHCO49	487	934819	1 - 752	15 - 766	Z43941, AI741147, AW419292, and AI200487.
HMUBI13	488	937820	1 - 970	15 - 984	AW160967, AA211700, AI341467, AI279873, AW161216, AW303833, AA428676, N39835, AI815401, AI815782, AI608966, H09215, AW162570, AW161752, AI357796, F08612, AA053621, AI309740, AI081095, AA359671, AI866956, N26682, AA428187, AI083998, AI083946, AA431956, AA928901, H09158, AL031722, AL132867, AL132867, AL132867, AL031722, AL031722, AL031722, AC012180, and AC012180.
HBXGL55	489	938766	1 - 2567	15 - 2581	AW192663, AI813485, AI467996, AW249671, AI823988, AI094671, AI336340, AW245209, AI338167, AI452800, AA312449, AI912974, AW136571, AI761673, AI859055, AI922047, AI151471, AI871294, AI565644, AI818821, AA858063, AI097651, AI910845, AA767239, AI498921, W56896, AI086438, AA255783, AI744679, AI921953, N38751, AI807705, AI339666, AI860241, AI470016, AI261514, AI084861, AI951827, AI273326, AA456816, AI083921, AA026234, AA256005, AA427873, AA975841, AW044122, AI475887, AW025647, H30863, AI128881, AA026233, AI312865, AA213700, AI369770, AA028002, H94766, AA193228, AA642716, AA999983, AA504815, AA213665, N48386, AI262677, AI240885, H38321, AA350441, R73806, H94734, AI193895, AI864868, AI912007, H38289, AA603355, AI197899, AI372820, AW183825, AI768797, AA377943,

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HAFAH26	490	940254	1 - 1750	15 - 1764	AA843300, AI911560, AI523785, AW237499, AI745296, AW085198, AI281417, AI276690, AW451214, AA488829, AA548082, AA296843, AI500123, AA296947, AC013708, AC013708, AC013708, AL157762, AL157762, AL157762, AL353192, AL354985, and AL354985.
HARMG23	491	942860	1 - 983	15 - 997	AI953875, AI680404, AI590551, AI082560, AI084107, AI243212, AA456171, AI473813, AA279972, AI339075, AI078761, AW418909, AI245568, AA443105, AI274709, AW243617, AA593768, T78012, AW139270, AA298137, AW244160, AA318651, AA630836, T78174, AI198099, AI934002, AI392724, AI141198, AI920782, AI341327, AW079432, AI366959, AI345261, AI494201, AI499621, AI916720, AI344935, AI345397, AI868157, H89138, AI627692, AI349814, AI889168, AI366968, AI799681, AI811192, AI345005, AI868180, AA420722, AI471909, AI345014, AW022494, AW020288, AI540606, AW022542, AI348917, AW151138, AA719383, AA417278, AI349245, AI307736, AI817584, AI273856, AI349186, AW149849, AW302992, AI690472, AA719238, N75771, AI934295, AW103608, N71180, AI340627, Y12860, AL035458, S77771, X95876, AR068466, AL050208, E08631, AP000083, E12580, AL133624, AC006197, X70685, X72624, U58996, E07108, AL133644, E04257, AF016271, AL110159, AF100781, AF022813, AL080158, AL136842, AL110225, AR005011, AL117394, E02253, AC006039, AF102166, A70386, AB026128, AF051325, I61429, L40363, S53987, AL133031, AL133054, X62580, AL133077, Y08616, U91329, AC006112, E08516, AL133067, I17767, AR068751, U57715, AF054599, AL137656, L13297, AL137283, AF035321, AF176651, AF120268, AJ242859, AL117585, AL133057, AF000301, Y17607, AF077051, Y11435, S75997, AF003737, AL122050, AL137640, AF107847, U67328, I46765, AF068615, AF017790, S73498, AF118558, AF036268, A47363, X99717, U31501, and AF114168.
HOFMV44	492	943224	1 - 1342	15 - 1356	AA459463, AI219490, AA705318,

					AA459242, AA574007, N44974, N33185, AI246251, AW270960, W96335, AI247249, and AW118922.
HE9CJ28	493	949245	1 - 3143	15 - 3157	AI570379, AI559155, AA904265, AI632377, AI908495, AI803264, AI128085, AA907767, AA045139, AW452815, AI539836, AA683030, H06611, AI651364, AA214647, AA443367, Z44955, AA902992, AI908497, AA532742, AW169967, AA433980, AW183446, AA884619, AA255657, AA348650, AA252141, T10439, AA324294, AA194914, and AI652350.
HE8AZ89	494	950713	1 - 703	15 - 717	AA332152, AA356092, F07677, AA204763, N89342, AA309660, A98668, and AL033527.
HFXKW94	495	950717	1 - 2202	15 - 2216	D62415, D79536, D79530, and D62440.
HISAF41	496	951370	1 - 1667	15 - 1681	AW028517, AW188277, AI264031, AI817388, AA648782, AI453043, AI017500, AI830660, AI263621, AA449636, AI631311, AA259158, AA904879, AI492449, AW294250, AA013250, AW439941, AA172063, AI453475, AI015722, D62609, R39884, AI300234, H07929, AW189712, AA172012, N71710, AI424714, AA312583, and AI243139.
HDPJH11	497	951371	1 - 534	15 - 548	H08035, R13587, H11806, AA214724, AC024667, and AC024667.
HLHCP93	498	950792	1 - 612	15 - 626	AI264031, AW188277, AA013250, AW439941, AW189712, AI453475, AW294250, R39884, AA648782, AI017500, H07929, AI631311, AI015722, AI830660, AI453043, AI817388, AA904879, AI300234, AI424714, AI263621, and AA172012.
HAIBC14	499	951671	1 - 3596	15 - 3610	AW377176, AA972730, AI809379, AL120784, AW195389, AA307786, AA528659, AI937352, AI880253, AI436287, AI955738, AA160707, AW190733, AI675853, AI347932, AW088724, AA406629, AW341945, AA806444, N63013, AI811945, AI093361, AA918621, AI634596, AW167801, AA827879, AI473850, W93520, AI610598, AW303898, W72035, AW071039, AI005090, AW206653, N20593, AI681096, AI653586, AI298699, AI554302, AI168500, AI161334, AW001775, AI671941, AW377175, R70985, AA974926, AW003410, AA159500, AW296599, AI671930, AI479155, W45020, N39629, AA446783, AW408030, AW241246, AA843265, AI342257, AA218731, AA854754, AI373434, AI435637, AI926612, AW392798, AA400556, W76428, N46440, N33401, AA315533, AW449175, AA218608,

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HKAJZ24	500	951676	1 - 813	15 - 827	AA373809, AF154107, AJ245539, and AF049344.
HWADY95	501	951731	1 - 1139	15 - 1153	AA609488, AA088826, AW301835, AI308020, AI860966, H91018, R01524, H82667, C20981, AA134268, AA878213, AA694197, AW274164, AA088689, AA133904, AI285166, AA133903, AA302740, F26419, AA582580, AA971908, F35821, H90906, AC012467, AC012467, AC012467, and AC068426.
HCHAG27	502	952058	1 - 1086	15 - 1100	AA464030, AA434281, AA410674, AI860751, AI628190, AA568168, AI653151, AI097605, AI199027, AI200649, AI199599, AI935345, AI699991, AA227411, AI475176, AA525327, AI910441, AI923458, AI247190, AI687257, AI923451, D78694, AI541551, AW438934, AA225358, and D78920.
HPCRA07	503	952124	1 - 916	15 - 930	AW409918, AA555102, AL043031, AI003522, AA630416, AI948578, AW337170, AW167070, AW273765, AA594053, AI569275, AI687711, AI831256, AW305101, AW273196, AI720563, AA496831, AA862433, AI138558, AA948345, AI937816,

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HDMAF23	504	952729	1 - 1269	15 - 1283	AW015516, AI743962, AW140107, AI628524, AW024995, AI017297, AI623829, AA806834, AI984485, AA625702, AW001987, AA310600, AI039990, W16685, AI859903, AA768302, AW243684, AA021442, AI168281, AI476604, AW024181, AI200902, AW028166, AI291914, H40694, AW020685, AA651989, AW150558, AA643030, Z25027, AW130816, T52555, R22742, AI916133, AI925910, AI028390, AI698415, AI144268, AA358576, AW072945, AI985596, Z28729, AI871674, AA027038, AA837399, AW023991, AA828132, AI631839, AA393701, D61435, AA400792, D60037, and AI089761.
HRGBU12	505	952730	1 - 589	15 - 603	Z28729, D61435, and D60037.
HADFD82	506	953295	1 - 991	15 - 1005	AL022328, AL022328, AL022328, and AL022328.
HCGAF54	507	954048	1 - 1550	15 - 1564	AI110617, AI310511, AI744260, AI952038, AW384588, AW384681, AA534627, AW373580, AW384656, AW384584, AW384669, AW384587, AW384878, AW373081, AW384893, AW372685, AA888950, AA811239, AA291003, AA773172, AA449969, AW292840, AI092253, AI340206, AW078875, N20250, AW372724, N53246, AA451774, AA740814, AI560204, AI469518, AA480600, AA907538, W95198, T73212, AW373094, N29313, AA314497, AA284356, AA026034, AI015667, AI075156, AA860363, AW384894, AA284355, T93793, AI761575, AA316090, AA780130, W94763, AA868850, AW386231, AA740256, AI269218, N99933, AW386224, W61201, H25602, AI352095, AW384679, AW384663, W90613, AW373101, AA971258, AA338101, AI266483, AA912213, W61153, AA004896, AA025388, AA301666,

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HSLGA19	508	610031	1 - 2173	15 - 2187	
HWWCL36	509	955759	1 - 838	15 - 852	AA040207, AA366219, AI766284, AI692491, AI367785, N46691, N41339, AA040206, AI094304, AA934917, AW339438, AI952460, AW241835, AA775514, and AA437029.
HDTEN41	510	955895	1 - 2005	15 - 2019	AW025299, AI738561, AI887436, AI597937, AI659244, AA610471, AA577623, AI871132, AW003423, AW206281, AI469787, AI929613, AA307643, AI139100, AI971126, AI433850, AW138479, AI214111, AW376450, AI631735, AI201766, AI564773, AI950054, W21995, AA580302, AA535708, AA527978, AW206673, AI658647, AW304348, AI570461, AI792729, AA961619, AI050035, AI970862, AW235805, AW273183, AI199699, F28588, AI202307, AA513389, AI657141, AI587645, AA192875, AW002117, AI632770, AI445048, F32325, AI758993, AA192151, AL049004, AI799834, AI686535, F20196, AI619825, AI985536, AA635919, AI373415, AI658905, AA908566, AI689347, AA302933, AA302932, AI859697, AA886019, T91271, F00429, AA247984, AI366720, AW440352, AA704816, AI858337, AW136404, AW183291, AW074318, AW131087, AI161148, AI873174, AI267733, AI817104, AL135103, D50922, and AB020063.
HSDDD20	511	956046	1 - 903	15 - 917	
HDPBL08	512	959377	1 - 966	15 - 980	H95481, AW163324, AF012357, N41994, AA300013, W22836, AA299843, AA405520, AI332310, AI217156, AA962196, AI792193, and AC007938.
HMELJ75	513	960354	1 - 1238	15 - 1252	AA258943, W56172, AI074113, AA357755, AA366212, AA300574, AI383100, AA248900, AA299098, AI125240, AI620543, AA053503, W19899, AA312954, AF151805, and Z84478.
HLTCU08	514	960951	1 - 673	15 - 687	N29196, U69560, T71396, R79136,

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HTOHK41	515	960955	1 - 1052	15 - 1066	AW293538, AI092559, AI832511, AA627207, AW291756, AW183976, AI962670, AA700099, AW168783, AA187937, AI744061, AI280582, AA357855, AA357915, and AA287524.
HTKAA03	516	961002	1 - 472	15 - 486	AC073152, and AC073152.
HMSGF27	517	962420	1 - 319	15 - 333	AW239293, R67182, AI525934, R57498, AL356652, AL356652, and AL356652.
HHFLM17	518	963511	1 - 478	15 - 492	AA961650, AF156857, and X58523.
HLICL10	519	964035	1 - 953	15 - 967	AA813108, AW104688, AI568627, AW103392, AW162649, AI590972, AI310509, AA738015, AI571534, AA057588, AW162439, AI885573, AW161079, AW340971, W72707, AA115504, AI921337, AW129958, AA557274, AI633173, AI871012, W31113, AI796793, AI567126, AA523274, AI128901, AI446764, AI453358, AW406342, AA983656, N32288, AI266348, AI141099, AI692628, W72171, AI150513, AI719003, AA568990, AI207910, AW337739, N90858, AI625059, AA718959, AA680152, AI244976, AI274374, AW328277, N28784, N91985, AI144347, AI026846, AA985498, AI086684, AI340109, AA308736, C16991, AW005256, W76457, AI540270, AI362184, N57634, AA758329, AA315706, AA847568, C17735, N34490, AW405006, AA412277, AA305568, AI752072, N44671, AA968490, W94315, AW193908, N63840, AA983220, W77946, N99982, W78876, T67797, AA207109, N59578, W95620, AA232257, AW403143, AW405852, R80271, N63221, AA216675, AW406135, AI244746, R73829, AI185576, W95621, AI365487, AI034307, H04584, R80177, W02337, AI798821, W79814, H55929, AA019176, F29076, R73828, N77492, AI472659, N35299, AA299488, H42087, AA657858, AI597814, F36683, W20250, R98077, AA362606, AA897745, D19606, W17081, AA092576, AA227196, AA455149, AA225022, AA347889, AA199579, AA323284, N79224, AA376005, R09082, H84841, AA334514, AA338030, T86829, AA923644, W88824, AA335118, AA341202, AW388373, W01497, AA228342, T73475, AW007149, R53703, AA464332, AA349219, R09081, T65495, AA372939, AI364239, R09043, AA319678, AA604619, AA861467, AA385378, R23569, H89636, N77686,

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HCUAZ04	520	965585	1 - 533	15 - 547	AA775453, AI188379, AW071755, AI936998, AW328162, AI193568, AI884989, AI936930, AA663982, AI942475, AI051524, AI768357, AA854333, AI370872, AA782728, AI042548, AI376901, AI497960, AA449945, AA847549, AA664042, AI244325, AI497929, AA621746, AI362906, AI287500, AI192299, AA181903, AI150936, AI287835, H10076, AI263335, N36925, AI219081, AA040876, AA834370, AI698887, AA970020, AI350093, AI298971, Z38369, C01768, AA723370, T91018, T99077, AA811294, AW075555, AI458456, AW150403, H72858, AI458455, AI351313, AI214680, N77563, AI016859, C04735, AA448965, AA449692, AW135780, N36028, AA503553, AA766732, N93835, AA907195, AA588280, C04420, AA828413, AI539572, and AF151863.
HE2SB11	521	965611	1 - 597	15 - 611	AA598993, R67135, T27094, AI005415, R20829, AW270908, T27103, R54591, AW026781, D87455, AL139082, AL139082, and AL139082.

HCFLJ17	522	954723	1 - 435	15 - 449	AW363242, AA377300, AA047345, AA404974, AF155096, and AF135439.
HLICJ19	523	966969	1 - 888	15 - 902	AA490741, AA574026, AI632462, AI470259, AC008122, AL139317, and AL139317.
HDPSM18	524	967483	1 - 527	15 - 541	D61636.
HMAKJ82	525	967593	1 - 575	15 - 589	T08504, and R57907.
HFPIX37	526	971428	1 - 740	15 - 754	AA485538, N43924, N43932, AA280231, H74053, AA379028, AA215546, AA613434, and AL022328.
HHEKP47	527	974402	1 - 575	15 - 589	AL036268, AB026436, AC023609, AC023609, AC074220, and AC074220.
HTPDV62	528	418671	1 - 604	15 - 618	AI183902, AA683089, AA428773, AA617873, AA371747, AA302461, AA490902, AA299236, AA769215, AW001581, AI371135, AI369827, AI190177, AI141079, AI245438, AA541648, AI095638, AW007486, AA888067, AA534074, AI798016, AA632013, AI554292, AI422715, AW170631, AI818273, AI003005, AI356047, AI215137, AA126607, AW182892, AW006997, R54752, W58692, AI971642, AA652728, AA700953, AA594060, AI332799, AI991239, AA643082, AA287161, AA464316, AI690764, AI184848, AA534625, W73756, AA482551, AW275871, AA482406, AI312662, AW083880, AA767390, AI091265, AA128033, AI499037, AA029784, AA737008, AI291962, AA524858, AW173571, AI590872, AA069805, AA305086, AW269677, AI291963, AW296379, AI497938, AI092881, AA102025, AA642110, AA765044, H56621, AI671631, AI200177, AI348340, AA491087, AA887225, AI573191, AI038522, AA470747, AA806051, AI302373, AA609354, AA485738, AA284500, AI358650, H19929, AA829537, C00792, AA286924, AA937034, AA723098, AA594909, AI141128, N66142, AI833016, AW328470, AA128009, AA523296, AA808375, AI199216, AA761304, AA425912, AI028399, W61335, AA953934, AI568372, AI202858, AA641528, AI863193, AI347365, AW170380, N31038, AA974521, AA706349, W58693, W76033, AA306100, AA838347, AI750639, N20116, T08092, AI750622, AA151694, T52641, AI272226, AA746219, AI199802, AA399424, AA369769, U66895, L76200, and A11042.
HUSAJ73	529	567234	1 - 575	15 - 589	AA460750, AA425819, AA029238, AA186764, AA502584, AA337503, N45411, R96683, W61047, AF059617, U85755, M96163, and AF136583.

HSKCJ76	530	747380	1 - 510	15 - 524	AI905432, W61047, AA469989, AI905450, AI816821, AI905502, AW176008, AA147405, AA443501, AW301071, H19938, AA309139, AA425819, AA040824, AW369505, AW003283, AW393141, AW003882, AA460750, W60895, AI653404, AA029238, AA186764, AF059617, U85755, M96163, and AF136583.
HCEOX38	531	881200	1 - 373	15 - 387	AA325902, AA780425, AI372793, AA295021, R10658, AW239077, AA788891, AA325971, AI905357, AB035698, AB035697, AC005973, AC005973, and AC005973.
HFICR59	532	911317	1 - 1029	15 - 1043	AI190165, AI979249, AI917302, AI633819, AI624750, AI471728, AW196791, AI985423, AI471611, AA609421, AA705338, N22327, AI922484, N75202, AA811162, H79904, H79810, AW407702, AF162130, AC005084, and AF161181.
HPDVO67	533	911405	1 - 771	15 - 785	AA292182, R48226, R54747, AA954094, AI758877, AI963225, AI267732, AC005954, AF023617, AC005954, and AC005954.
H2LAD53	534	952181	1 - 348	15 - 362	AA313893, AA332909, R32396, and N57638.
HETLM90	535	954181	1 - 1950	15 - 1964	AI809477, AW183932, AW104451, N47929, AA133450, AL038022, AI803730, AL038036, N50618, T79916, D61735, AA844713, AA312942, AW369731, R73103, AA453226, D60618, R24675, AA501468, AA043536, AA092453, AL044155, AW006909, N42908, H02727, AI741612, AL044050, AA115744, AI638590, N29583, AL038023, N50560, AI281746, AF000145, and AC007684.
HCE5E94	536	969287	1 - 396	15 - 410	AI952978, AI432483, AI933748, AI469036, AI201084, AA927480, AA921974, AI653945, AA514329, AW451209, AW025649, AI282809, AI471152, AI873429, AI394698, AI129761, AI082334, AI393259, AI949581, AI247335, AI761818, AW296673, AI088000, AW242494, AI985953, AW082634, W69471, D58283, AI824226, D80043, D80522, AI206115, AI201684, AI219877, D59467, AI276710, AI144234, D81026, C14389, C15076, AW275101, AW188285, D80022, C14331, D80391, D80164, D59787, D80188, D80253, D80196, D59859, D80166, D80195, D57483, D51423, D59619, D80210, D51799, D59275, D80240, D80227, D59502, D81030, D50979, D80024, D80212, D80219, D80366, D59927, D80269, D59610, D80038, AW177440, AA305409, D51022, D59889,

					D80251, D50995, D80193, AA305578, D80241, D80378, C14429, AW378532, D80045, D51060, C75259, AW178893, T11417, T03269, D80248, AW179328, AA514188, D80133, C14014, AW177501, AW177511, AA514186, C05695, AW360811, AW178762, AW377671, AW178775, D80134, D58253, AW375405, D80268, AW352117, D80132, F13647, AW352158, D80247, AW366296, AW360844, C14077, AW360817, AW375406, AW378534, AW352170, AW179332, AW377672, AW179023, AW178905, D80302, AW352171, AW377676, AW177505, AW178906, D80439, AW179024, AW177731, AW178907, AW179019, AI905856, D80014, AW360834, AW179020, AW178909, AW177456, AW178980, AW179329, D80157, D59627, AW177733, AW378528, AW178908, AW178754, AW179018, C06015, AW303514, D51213, AI684338, AW179004, D51103, Z21582, AW178914, AW378525, AW177728, AW299628, D51097, AW178774, AW352163, D58246, AA285331, D80258, D59503, AW352174, T48593, T02974, C14227, AA809122, AI525923, AW367967, AW378533, D45260, C03092, C14975, H67866, AI525917, AW367950, D80064, AI535961, H67854, AI535850, AI525227, AI525920, AI557774, D45273, D59317, C14973, AI525235, D80168, X15218, AJ132110, AR018138, A62300, A84916, A62298, AF058696, AR008278, AB028859, X67155, Y17188, D26022, A25909, A67220, D89785, A78862, D34614, D88547, Y12724, X82626, AR025207, A82595, A94995, AR060385, AB002449, AR008443, AB012117, AR066482, A85396, A44171, I50126, I50132, I50128, I50133, A85477, I19525, A86792, D88507, X93549, AR066488, AR016514, X68127, AR060138, A45456, A26615, AR052274, Y09669, A43192, A43190, AR038669, I18367, AR066487, AR054175, A30438, I14842, D50010, Y17187, AR066490, A63261, A70867, AR008277, AR008281, AR060133, AR008408, U79457, AR062872, AF135125, AR016691, AR016690, U46128, D13509, A64136, A68321, and I79511.
HFXCU55	537	499457	1 - 170	15 - 184	AR049599, AC034243, AC020758, and AC020758.
HEPBV24	538	513261	1 - 404	15 - 418	AR049600, and AR049599.
HFRAU96	539	527840	1 - 539	15 - 553	T56179.
HTLBD23	540	527944	1 - 483	15 - 497	

HCEBM51	541	536558	1 - 862	15 - 876	AI971509, AA977426, AA076336, AA742441, AA775500, W76467, R88591, AI952835, AA074145, AW196957, W72230, AA015637, AA322025, T16831, AI905037, F21343, AA322439, AW175812, AA300535, AA300534, AA102387, AW452926, AA961359, AW391317, U82381, AF120278, U79754, AF010310, AC008103, AC007326, AC007325, AC007663, AC007325, AC007325, AC007325, AC007326, AC007326, AC007326, AC008103, AC008103, and AC008103.
HSLFF79	542	609838	1 - 898	15 - 912	
HKTAB71	543	661483	1 - 736	15 - 750	AA777511, AA203750, AI469206, AA894636, AI272051, AA676742, AA894649, AF111858, and AL023806.
HSDIF25	544	678003	1 - 534	15 - 548	
HNHHW82	545	684342	1 - 270	15 - 284	AC074221, AC074221, AC020884, and AC020818.
HFATN41	546	712097	1 - 725	15 - 739	AI541369.
HHFFG80	547	733387	1 - 540	15 - 554	AW058559, AI741080, AA581168, AI190754, AA581130, AL357556, AL357556, AL135799, AC025395, and AL135928.
HSDFF73	548	761657	1 - 751	15 - 765	I08480, I08481, I08487, and I08488.
HTLBH79	549	774422	1 - 560	15 - 574	AI927735, AW081044, AA662961, Y15061, AB026730, AB022537, and AL031228.
HBWCD80	550	777346	1 - 1008	15 - 1022	R61649, AA318906, T75101, F12865, F05122, Z42705, and AB011156.
HSDKI89	551	786812	1 - 509	15 - 523	AC012620.
HIBDA29	552	810879	1 - 504	15 - 518	AW294757, AI571188, AI879238, N51749, AA351100, AA350414, AI498064, AA058664, and AB029432.
HLDQU68	553	825558	1 - 452	15 - 466	AI927829, AI823488, AI767760, AI263072, AA203731, R02681, AI640611, AI796255, AI470622, U80018, U95090, U80019, U95090, U95090, and U95090.
HMUAS41	554	827510	1 - 373	15 - 387	AA386164, AA059359, AA586923, and D42047.
HTXOH20	555	837509	1 - 636	15 - 650	AA429144, W27414, T65501, R13762, F11826, AA652400, AI805064, AI379298, AC013591, and AC013591.
HSLFG13	556	847314	1 - 693	15 - 707	AC008792.
HDAAS21	557	850577	1 - 1049	15 - 1063	AI797146, AI332896, AI092892, AI138501, AI206010, AI085623, AI351499, AI192755, AI436068, AI435805, AI863222, AA992679, AA743758, AA581568, AA192138, AA972283, AA251083, AA319062, AA319128, and AA251720.
HARMH10	558	852701	1 - 847	15 - 861	N99474, U91561, and Z56563.
HSDAI07	559	859237	1 - 643	15 - 657	AC034099.
HLDQU41	560	864996	1 - 492	15 - 506	T68087, F06711, R11806, AF163312, AB013885, AP000355, M97662, AF169551, AP000356, AF169550,

					AF169553, AF169552, and AF169554.
HAJBU06	561	864997	1 - 1728	15 - 1742	AI770035, AW271417, W55897, AA931190, W55898, AI636003, AI640625, AW058589, AI241138, H11714, AI289211, AW241904, AW206632, H07104, AW271340, AW024333, AI470949, H18514, F06711, R11806, AI470928, AI763034, W86945, AW242530, AW275470, F02979, Z20962, H19181, R37721, H55419, T67940, H11783, H55374, AB013885, AP000355, AP000356, AF163312, M97662, AF169559, AF169555, AF169554, AF169558, AF169553, and AF169556.
HSLDO63	562	866332	1 - 509	15 - 523	AC074219, and AC074219.
HNHAG26	563	866694	1 - 1430	15 - 1444	AI526107, AI535772, A38246, E00893, A11530, AR029499, AR029496, A11542, AC074220, and AC073351.
HBGBC61	564	867065	1 - 437	15 - 451	
HMAEM27	565	870252	1 - 810	15 - 824	AI123252, N48389, AA253248, AI553735, AI677937, AI624207, AI858995, AA172135, AW090335, AW001173, AA936673, W22712, AA418262, T51498, AI738891, AA776947, AA429081, AA479552, AI282752, AI679217, AW135936, AI391727, AA310952, AI370861, AA010403, AA349379, AA477652, AA825912, AA633113, AA824470, AI086260, AA102039, W21146, AI826473, AW166857, AW328108, AI921151, AA485927, AW248844, AA553582, AI417403, AW196852, AA827239, AI000593, AA252975, AI688558, W78065, AI278222, AI351936, AA747665, AW069300, AA835073, AI816982, AI677698, AI273412, AI494393, AI690880, AW300939, AI744393, AW151639, AI701741, AA281891, AI022203, AW055328, AW189489, AI335033, AW191910, AA614800, AI963519, AI291643, H93308, AW102892, AA922355, AI798622, AA649492, AA640412, AI348316, AI908220, AW169588, AA559323, AA494168, AA629519, AI420052, AI871728, AA248734, AA632551, AA678714, AI436729, AA724241, AA410619, AI139715, F22136, AI392945, AI681696, AA360250, AA383763, AI418290, AI564737, AA094866, AA034216, AA897218, N93463, R32024, AI584164, N79246, AI202936, AA232241, AI475305, AW023868, R21445, AI017328, AA533400, AW245332, AW008988, AA766527, AA092266, AI291648, R32077, AI219344, AI352417, AI985631, AI202282, AW204768, AA759019,

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HEBCK42	566	875541	1 - 602	15 - 616	AW389864, AW389904, R91225, AW389872, AW389865, H43267, AA001752, AI124886, R93360, AA279355, AA075438, AW390360, AW390420, AI904749, AW391359, AW361085, R52400, AA374032, R07746, AI078153, AI744359, AW103948, H50264, AW009649, AW361035, AA730829, AA694204, AI984487, AA314588, AI880499, AI672843, AW390362, AF108211, AB026723, AF154065, AR061907, AF119665, AL355138, AL355138, AC067749, AC067749, and AC067966.
HELFN03	567	881180	1 - 728	15 - 742	
HKIMF95	568	882308	1 - 256	15 - 270	AI825821.
HTLHE85	569	883263	1 - 770	15 - 784	AI369696, and AB029432.
HTEOE72	570	886412	1 - 662	15 - 676	D51799, C14389, AA305409, C14331, D58283, D80022, D80024, D80043, D59275, D59859, D59467, D80166, D80195, D80227, D51423, D59619, D81030, D80210, D80391, D80164, D80240, D80253, D59787, D59502, D80212, C15076, D80196, D80188, D80219, D59927, D80269, D57483, D80366, D80038, C14429, D50995, D50979, D59889, D80193, D59610, D80378, D80241, D80045, D51060, D51022, AW179328, C75259, T03269, AW178893, AA305578, AW177440, C14014, AW378532, AA514188, D81026, AW178775, D80134, D80248, AW178762, D80251, D80522, AW369651, D51250, F13647, D58253, AW177501, AW177511, AA514186, D80133, AW360811, AW352158, AI910186, D80168, C05695, AW352117, AW176467, AW375405, C14227, C14407, D80132, AW377671, D80268, D81111, AI905856, C14298, D80064, AW366296, AW360844, AW360817, AW375406, AW378534, AW179332, AW352170, AW377672, AW179023, AW178905, AW378540, D80247, AW178980, D80302, Z21582,

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HELBN13	571	907599	1 - 772	15 - 786	
HFIJE03	572	914882	1 - 1749	15 - 1763	AW195390, AA603321, AA626629, AI972913, AI923429, AW297299, AI587102, AI206973, AI623146, AA827831, AI653482, AA579779, AW264892, AI418052, AI637485,

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HABGE01	573	915743	1 - 1376	15 - 1390	AF039235, AI669256, AW245958, AI763048, AW237088, AI093187, AW296090, AI571378, AI354976, AI680102, AW119180, AI140327, AI201269, AA934553, AI991982, AI203368, AA625161, AW268813, AW152391, AA497000, AI243335, AI185996, D80898, AI887841, AI312767, AA559846, AA040597, AA315994, AI902903, AA373939, AA634307, AI700879, AI671153, AA358918, AI824923, AA918570, U25751, AI916936, AI927665, AI738973, AA362530, AI867799, AW087508, AI810550, AW196382, AA359868, D80899, AA954586, AA738423, AI698559, C01220, AI432152, AA489585, F31194, AA361102, D20015, AA928147, AA040679, T19862, and T27189.
HWLKM02	574	917409	1 - 1540	15 - 1554	AI761206, AI953838, AI693635, AW006136, AI660354, AI675370, AA531031, AI630826, AW136334, AI798001, AA489499, AI740676, AI347578, AI678160, W46904, AI624880, AA648930, AI612996, AW002247, T65409, AW246759, AA845556, AI970510, AI863578, W17109, F09619, T65484, AW392670, AL119522, AW372827, AL119391, AL119324, AL119497, AL119319, AW384394, AL119396, AL119484, Z99396, AL119457, AL119443, AW363220, AL119335, AL119483, U46351, AL119363, AL119496, AL119401, AL119355, AL119341, AL119399, U46350, AL119418, AL119439, U46349, U46341, U46347, AL119444, AL134524, AL037205, AL134536, U46346, AL134527, AI142137, AL134525, U46345, AL134518, AL134528, AL134538, Z98258, AR060234, AR066494, A81671, AR069079, AB026436, and AR054110.
HOVEB13	575	917564	1 - 1360	15 - 1374	AA928779, AI685200, AA576884, AI218215, AI809292, AI355487, AW082223, AW263592, AA424504, AW152614, AI265774, AW070728, AA933972, AA927905, AA707564, AI921682, AI431416, N30148, AA132983,

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HE8UB94	576	920288	1 - 547	15 - 561	AL039567, AA088498, AA424424, T06192, AA337881, AW389515, AW450646, and AB028973.
HTHDJ23	577	921274	1 - 1727	15 - 1741	AA251720, AA319062, AI057495, AA319128, AA829101, AC068620, and AC068620.
HWHPB72	578	922580	1 - 766	15 - 780	AL036002, F03069, AA449870, F04459, F04460, T83997, AA083638, W56855, T83996, AI207629, AI133385, AA773032, AF143874, and AF118086.
HSQFX64	579	922581	1 - 407	15 - 421	AI807806, AA773032, AA666091, AI478904, AL049697, AL049697, AL049697, and AL049697.
HDABB84	580	922582	1 - 1810	15 - 1824	AI807806, AI016336, AI761537, AI129813, AA773032, AA081053, AI741788, AI243753, T15983, AA024496, AL036002, AA872294, T70068, AA485935, W60361, AI399722, AA489546, AW187991, AW004932, AI272983, AA677350, AA532887, AA083638, AA317035, AA954840, AA954525, T70137, AI419877, AI872382, AI684078, AA666091, AW236842, AI739236, AW102712, F09944, H08382, W56855, F03069, W77737, T79040, AI635896, F04459, W84730, F04460, AA938144, AA203730, T83997, AA860638, AA505476, W78907, W72075, T83953, AA533240, AI478904, AI207629, AI133385, C01935, R12777, AA449870, T85407, AL049697, AF143874, and AF118086.
HLHFN83	581	924110	1 - 662	15 - 676	AI765848, AI435448, AI458176, AI268603, AA677741, AI470359, and AI382545.
HPCRR26	582	926401	1 - 857	15 - 871	AA826261, AI631834, AI652054, AI659468, AW299808, AI609264, AI767730, AW149124, AI744114, AW083268, AA584429, AA485965, AI636509, AA872632, AI424281, AI380961, AI890797, AI768770, AA552396, AI478192, AA612591, AI469010, AI309965, AI380658, AA883173, AI392779, AA876047, AI095446, AI800022, AI016332,

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HCMSD61	583	927475	1 - 1583	15 - 1597	AA436098, AA863239, AA682545, AA568261, AW383298, AI078271, H54890, W65386, AA435999, AW383307, AW383294, AI302210, AI078613, H97506, N64810, AI148069, AW383306, R91322, AA328807, AA205935, AA830860, AI311836, AI351180, C18047, AA299314, AI866392, AA367137, H13750, AA938701, AA295495, AI525903, AI241160, AA344078, R91283, AI525902, AA873329, D82264, H13698, W61290, AA054016, AA013384, AA018279, N75659, W96254, AA018267, AW379331, AA827396, H86191, AA056119, and AF151841.
HCEEC58	584	933866	1 - 314	15 - 328	D42047.
HSYAD06	585	935334	1 - 751	15 - 765	AL041803, AI691071, AA533580, AI346697, AI860607, AI334249, H80063, AA479938, AW298530, AA974288, AA478842, N34165, AI652460, AA779617, AI202133, AI498814, AI831564, AW135145, AI638858, AI979246, AA455332, N39978, T52099, AW408005, AI991562, N88572, AI887050, AA992515, AW072133, T47349, AA291693, AL035086, and AL117452.
HUSID53	586	943374	1 - 1050	15 - 1064	R95789, and AA323316.

HRGDE77	587	948737	1 - 1876	15 - 1890	R20962, Z45236, F08632, AW407497, AA343968, AA226870, AA503842, R01824, R06788, AB033010, and AL137675.
HEGAU68	588	950009	1 - 558	15 - 572	AA057228, H85626, H39014, H37972, AI907720, AA013159, AC060820, AC060820, AC068946, AC068946, and AC068946.
HNGKH38	589	951032	1 - 237	15 - 251	AI963473, AC019122, AC019122, and AC019122.
HNHNN26	590	952398	1 - 392	15 - 406	AC078913, AC074334, AC074334, and AC010357.
HTEHP64	591	953791	1 - 488	15 - 502	AI962178, AW301662, AA906865, AI655904, AA206437, AI929167, AI929609, AI879995, and AI815694.
HMIAO78	592	953793	1 - 666	15 - 680	AI962178, AW301662, AA906865, AI929167, AI929609, AI655904, AI815694, AA351116, and AA206437.
HFPCN94	593	955009	1 - 1460	15 - 1474	AI830691, AI948511, AI357436, AI972408, AI697857, AI826256, AI422683, AW341450, R56168, AI651095, AI761400, AI768573, AI831948, AW300444, AA393313, AI288333, AI417903, AW165982, AW271819, AW085599, AI927043, AI936396, AI421517, AA988563, AI523543, AI817020, AI420397, AW149563, AI889625, AA594835, AI694269, AI634398, AI283759, AA653712, AI392973, AI304849, AI675030, AI831197, AW237591, AA872799, AI452397, AI368689, AI190058, N29545, AA837984, AW172298, AI253197, AI375540, AI830712, AI862664, AI992087, AI827278, AA057861, AI300150, R33735, AI082343, AI926819, AI619923, T04917, T35202, AA759006, AA356968, AI632766, N52709, AA502373, AA043670, AI831516, AA937125, AI262912, AA642808, T96330, AI823952, N47832, AW196914, AI630735, AW028564, AA057051, AI684627, AI806818, AI654087, AA371419, AA974906, AW294325, AW193208, AA423938, AI919454, N32607, AI369782, AA256421, AI769153, T93496, AI300625, AW025718, AI991799, W15206, AW378641, AA043828, AW403029, D11567, D11569, D11572, D11571, D11561, D51030, AL035461, and D11568.
HSLHV08	594	958582	1 - 153	15 - 167	E07939, E02606, AC074220, AC074220, AC074221, AC022123, and AC055703.
HPDVW40	595	961039	1 - 951	15 - 965	AI948584, AI678666, AI765219, AA813511, AA702993, AA620965, AI990303, AA194467, W19706, AI004689, AI003925, AI004690, AA194383, AI338870, AI082639, AI127228, AI934786, AI770075, AA812597,

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HEMFC70	596	961963	1 - 1564	15 - 1578	AI674223, AW372210, AA600053, AW068223, AA553729, AA329976, AA215696, AA164298, AA164299, AA280511, AF151828, AF147717, AF148446, AF175903, AF148447, Z57619, and AF065398.
HLDOO20	597	910371	1 - 145	15 - 159	AI432644, AI623302, AI432653, AW081103, AL045327, AI431307, AI431316, AI432654, AW128900, AI431238, AI432650, AL134524, AI432666, AI431230, AI432677, AI431323, AI431328, AI431321, AI431315, AI431353, AI431312, AL135012, AI432655, AI431310, AI431354, U46344, AL042729, AL042898, AI492519, AI431347, AL042655, AI431243, AI431246, AL042853, AI431357, AI432675, AI432661, AI431337, AL047611, AL042533, AI431235, AI791349, AL042787, AL043166, AL042515, AI432647, AL042931, AI432649, AI431351, AI432645, AI432651, AI887775, AL043091, AI431255, AW089557, AI432674, AL040207, AI431330, AL042488, AI866786, AL043089, AI432656, AL046356, AL043321, AI431248, AI431241, AI804505, AI432665, AL047675, AI440260, AL043295, AI926593, AI432672, AI567961, AI539771, AI537677, AI494201, AL042508, AI500659, AI539260, AI866465, AI815232, AI801325, AI500523, AI538850, AI582932, AI284517, AI923989, AI872423, AI590043, AI500706, AI445237, AI491776, AI289791, AW151138, AI521560, AI889189, AI500662, AI582912, AI284509, AI539800, AW172723, AI889168, AI440263, AI538885, AI927233, AI866573, AI633493, AI434256, AI866469, AI805769, AI434242, AI888661, AI500714, AI284513, AI888118, AI285439, AI436429, AI859991, AI798359, AI889147, AI623736, AI355779, AI371228, AI581033, AI491710, AI440252, AI440238, AI431257, AI567971,

					AI610557, AI860003, AI242736, AL045891, AI828574, AI887499, AI539781, AL042842, AI702065, AI539707, AI885949, AI285419, AI559957, AI521571, AI285417, AI469775, AI431247, AL043239, AI866581, AI431254, AI567953, AI815150, AW074057, AI446495, AI867068, AI225248, AI890907, AI698352, AL041862, AL039390, AW151974, AI521589, AI432662, AW151136, AI431345, AW151132, AI815239, AW194509, AI582926, AI866691, AW058275, AI436458, AI499555, AI440261, AI431346, AL042802, AI561177, AL046681, AL047163, AI432676, AI432673, AI432658, AI952433, AI889191, AI561170, AI358271, AI801286, AW151979, AI282249, AI431231, AI690946, AI371229, AI648567, AI521596, AI249936, AI433157, AL039287, AI559976, AL046137, AL042745, AI538867, AI872310, AL045166, AI590024, AI493559, AI371251, AI866510, AI924051, AI371243, AI866461, AI923046, AI687587, AW151970, AI872315, AI687944, AW197139, AI275175, AI469764, AL042551, AI539863, AI366900, AI432657, AI866458, AI366910, AL045328, AI554821, AI963849, AI538615, AI955441, AI963463, AI499463, AI469784, AI469754, AI610362, AI687614, AL045620, AI440239, AI804531, AI537273, AI537191, AI436456, Y17793, AL133049, L10353, AL133053, AL122101, AF064854, AL133076, AL133074, AF019249, AL133070, AC004159, U30290, AL133084, AL049423, E13998, AL133655, AL133069, E12580, AL080158, AF181849, AF181850, AL122049, Y12860, AF002985, AL133015, AL133608, AR034821, S77771, M30514, E03204, E03202, U79523, AR036183, AL133099, AR068466, AL133607, U68233, I92592, AF146191, AL133568, AF038440, AL133606, AL133051, AF081195, AC005291, U31501, AC004213, AC007406, U90884, AL022170, I89934, I89944, A30330, A30331, I46765, X92070, S69510, AF022857, AF022858, AL133054, AL137536, E12579, X96540, AL109725, AF095901, AL133068, AL133014, AJ001388, AR038969, L24896, Z93784, AR055519, U77351, Z48796, AL049324, AL137526, D44497, U02885, AF079763,

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HSLEP67	598	963505	1 - 440	15 - 454	
HSLEP94	599	964463	1 - 1341	15 - 1355	D57186, and C16289.
HSENS89	600	964527	1 - 1039	15 - 1053	W52878, R10513, R17310, AL117452, and AL049694.
HNTAF77	601	966190	1 - 505	15 - 519	AI436205, AI280203, AA479713, AI421639, AA479835, AA400807, AI278910, AW452244, AI080729, AI220942, AA283689, AA678969, AI290458, AA757964, AA687788, AA972381, AA290711, AA149275, AA149261, AW050584, AA906243, AA812702, AA909387, AI525571, and AI557278.
HBIOV48	602	967566	1 - 523	15 - 537	T87573, and AL049709.
HBGMN45	603	967744	1 - 696	15 - 710	AC022123.
HBXCE20	604	970889	1 - 880	15 - 894	
HSLJU88	605	780811	1 - 527	15 - 541	
HKGDQ60	606	863330	1 - 756	15 - 770	AI929390, F00197, Z24927, AA019708, AC002400, and Z59200.
HSDKF67	607	933059	1 - 456	15 - 470	AC020885.
HSLFT94	608	603023	1 - 416	15 - 430	
HTJMD06	609	837603	1 - 482	15 - 496	AB002346, AF039945, AF041860, AF041858, AF041857, AF041859, AF041862, AF026123, and U90312.
HNTBH68	610	851274	1 - 569	15 - 583	AW157233, Z43649, C15376, and R20382.
HMEKO39	611	863507	1 - 669	15 - 683	
HAABH11	612	965473	1 - 685	15 - 699	AA418447, H83353, H85525, and AA759336.
HUVFZ43	613	910860	1 - 1436	15 - 1450	AL121363, AI569727, AL121364, AA296414, Z17339, and AA345259.
HCEPH84	614	910864	1 - 1677	15 - 1691	AA663485, AA442393, AA167722, AI651722, AA056327, AI479964, AA191589, AI194037, W76203, W72966, AA193004, AA436615, AA019920, AI298004, AA206829, AI372800, AA207119, F33105, Z25123, T33292, AI372801, AI221332, AA054088, F36674, R51792, AA019932, R49566, F23450, R56064, AI937722, F28731, F26963, AI609568, F36659, T77421, AA350199, T51483, F25641, AA058465, R38363, AW248425, F25571, F08410, R55818, AA191072, T47787, R56176, AA054025,

					AA180848, AA054057, AA194490, R16315, Z41401, AA058754, T75382, AA018176, F01857, F17797, AA166864, AA204736, F10729, AA249839, R36279, R55903, AA193053, AW138074, AA326216, F02117, F13127, AA339074, F05591, AA194690, Z42609, AW247972, F35038, Z63803, Z64258, Z63848, Z61696, Z61697, Z64257, and AC013603.
HNFDO52	615	916260	1 - 345	15 - 359	AA357035, U23853, L11329, and AC012307.
HHEJR23	616	919082	1 - 850	15 - 864	AI440338, AA868192, AI808409, AI567414, AI278014, AI291975, AW304837, AW024447, AI341786, AI183586, AW024630, AI302861, AI208559, AA043196, AI492200, AW103254, AI214841, AI160734, AI868969, AA741444, AA731505, AI469608, AI351129, AA947737, AA970703, AA043598, AA045490, AI095776, D25707, T19154, AI187765, AA058909, AW087623, AA652268, AA507020, AA291791, AW449034, AA434511, AI809374, and Z46372.
HMTAX31	617	971343	1 - 1173	15 - 1187	AW188661, AA406582, AA847680, AW167272, AW151243, N25994, AA621715, AI015551, AI829183, AI290229, AA410486, AA815315, AI040507, AI818989, AI040765, AI636434, AW167634, AI085194, AI342313, AA406387, AA827049, AA812382, AA769207, AI278749, R60575, AA983613, N36626, AI283824, AI128463, AA374753, AA911296, AA484968, AA463739, T30540, T53444, AI126964, AA411633, R70442, AA256096, AI655254, AA410304, R37051, AA872115, AA528102, AW385663, AA625487, AA985260, AA411672, AA411671, AA988584, AA284022, H42417, D20266, AI916438, AA345748, R69455, H42445, AI753452, AL079839, H82446, and AA285169.
HKIYI74	618	729217	1 - 335	15 - 349	R88881, and AI863797.
HSKEI21	619	760792	1 - 471	15 - 485	AA143590, AA311671, AW245740, AA085284, AA380905, AA314649, AA053488, AA115821, N40293, R48031, and AF005050.
HKAFK68	620	869127	1 - 593	15 - 607	AA085284, AA311671, AW245740, AA053488, AA143590, AA115821, AA380905, N40293, R48031, AA314649, N41781, AF005050, AF005051, and V00143.
HSRBB92	621	905110	1 - 2332	15 - 2346	AI992179, AW188159, AI926499, AI926498, AI763400, AI421095, AA862284, AI720384, AI869696, H38016, AA831687, AA307183, AI018137, AA486789, AA974505, AI090091,

					AA452882, AA884683, AI740894, AA432181, AA159901, AA918138, AA758089, AA974498, N21230, AA905692, AI123002, AI923636, AI361685, AA431160, AW188033, AA664029, AW366681, AI318079, AI015094, AI125440, N27905, AI239567, AI720492, N27509, W70189, AA129411, AA486964, AA047262, AA745630, AA962542, AA622987, AA761345, AI476363, AW361963, AA165010, AA136547, AA826442, W27215, AA173158, AI358157, H53700, AW407265, AA953388, N21070, AA768158, R51769, AA515123, AA063525, R70834, AI220536, F37121, AA845912, AW407373, W22674, AI381262, R51770, R32559, W70062, H53699, Z40510, AA854028, AA214484, AA905868, T81857, AA831837, AI497849, AI936784, AI184454, H65537, W02660, W25730, AA908937, C02652, AA355806, AA883739, C03254, W23216, R91464, AA983747, F24286, AI091283, AA040178, AI221931, AA632020, AA680078, R70782, AW340183, N63460, R72023, AA214403, AI910370, AA359073, AA969208, AA977551, AI292225, AA993649, AI828995, Z44657, AA359273, AA057148, AA707548, AW340816, AA613385, D61871, H38242, H81487, AI218047, AI190091, AA453052, AW138451, AW294322, AW452108, AI766143, AW140098, AI832222, AW292106, AJ271408, AF132938, AF106798, AL133631, AR007449, U39643, and AF094700.
HWLLR80	622	931564	1 - 701	15 - 715	AI394051, AI459549, AA143102, AI801370, AA640186, AW117949, AI458156, AA687760, AA292780, AW001899, AI434131, AI033982, AI693547, AA631567, AA652457, AA477424, AA918511, AA573416, AI826270, AA778640, AA290862, AA150391, F22701, AA890730, AA479585, T09094, AA291044, AA394172, AL139349, and AL139349.
HWLWQ87	623	932577	1 - 2039	15 - 2053	AI184616, AL038128, AI052689, AI825541, AI469846, AA065183, H97839, AA065182, AA482001, AA463816, AI129295, AA776688, AW003401, N29911, AI355425, AA401877, AA262093, AI654596, AI338040, AA419345, AA401808, AA223738, AA746383, AA565389, AI559679, AI290048, AA862959, H44548, AW085914, H73079, AA460252, AA205374, AI344645, AA148676, AA094905, AA148677,

					AA382613, AI868047, T27260, AA092297, N83850, AI932777, AA526039, AI702286, AA036976, AA836322, AA205046, AW352239, H73080, AA036977, N42962, AA383391, AA223825, AI270665, AI275830, AI242246, D42084, and AL137284.
H6EEP53	624	942872	1 - 2427	15 - 2441	AA203660, AW005296, AI832389, AI884876, AI821774, AI857542, AI375889, AI126807, AW105425, AI683390, AW327749, AA583197, AW083560, AW374291, AI498223, AW300679, AA604543, AI940644, AA130045, AI301571, AI148078, AI569649, AI937172, AI081042, AA002152, AA078817, AI159912, AI445561, AI805657, AI052455, AI079310, AI812099, AA609319, AA757372, AI276854, AA448176, AA310487, AA134039, AA781740, AI684850, AW087416, AI792120, AI694019, AI127345, AA340907, AA813907, AI052449, AA960856, AA037280, T50735, H78343, AA634578, AI025798, AA379889, AA325546, AA625807, AI500194, H66564, F17150, AA078916, R71136, AA405506, AA577413, R97651, AA354162, AI814129, R21055, AW004806, AI940640, AI352262, AI240763, AI280471, AA889088, H78344, T23478, AA878694, AA365252, H26970, AA336606, H14637, F03913, AA933720, R46235, AA333121, AI869601, F36821, AW074558, M78972, M78956, AI475077, AI126126, F29918, AA427399, AA428254, T50891, AA715028, R11273, T91917, T98945, T98995, R11215, R85210, T27952, F29924, AA910724, AA865297, AA554928, F07663, AA653527, AA132925, AA844613, AI147818, H14931, AI214070, N51632, AA564700, D50913, and M57728.
HE2KZ56	625	968439	1 - 378	15 - 392	
HFXHD52	626	490721	1 - 612	15 - 626	L48842, and X55499.
HPMAM67	627	915879	1 - 63	15 - 77	AA369592.
HBXFI75	628	566766	1 - 1283	15 - 1297	D79572, AA127422, AA127356, D62400, D79542, AI526056, D79553, and AA599103.
HELGM94	629	913938	1 - 1667	15 - 1681	AI278617, AI609398, AI290739, AI081552, AA621655, AA868455, AI608719, AI567964, AA421224, AA421214, AW193527, AI754809, AW009516, AA868840, AW001133, AI022091, AI376946, AI735188, AW247558, AI689150, AA993670, AI743002, AW009876, AA911941, AA888156, AI277633, AA602889, AA830904, AA579086, N40529,

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HLJDQ52	630	923110	1 - 935	15 - 949	AA315016, AL120879, AL120792, Z19401, AL120263, and D29641.
HAJAW40	631	1219455	1 - 2564	15 - 2578	AI859306, AI623176, AW148834, AW328636, AW452043, AI401651, AI590936, AW440292, AI927932, AW129458, AI688898, AW028230, AI679554, AA189073, AA022896, AI914123, AI953392, AW379303, AI478661, AI393850, AW135223, AA948188, AI707720, AA046652, AA723570, AA047432, AA988434, AI476239, AI095386, AA635582, AA248375, AI970014, AA436606, N99593, AA191176, AI990341, AI474757, AW370851, AI282056, AI750123, AI567697, AI679994, AA046782, W22335, N71694, H70453, AA047471, AI540598, AA427600, T24033, AA627163, AI074380, AW192917, T93690, AA022895, AW028993, AW379298, AL137423, AL121653, AL121658, AF159131, AW629642, and AW770733.
HATAZ67	632	1106635	1 - 754	15 - 768	AA319531, W27441, AI954747, AI953699, AA319415, AF155140, AF142629, and AF142630.
HBUAC02	633	1220017	1 - 973	15 - 987	AI719346, AA310771, AA233019, AA485496, AA411844, AA653679, AI129243, AI589063, AA829388, AA830191, AW300947, AI804787, AW206297, AA864496, AA485340, AA411764, AA831521, T47212, R10201, AA853167, AA810264, AA806768, T47213, AW206611, AA601948, R23156, AA483462, AI621256, AW382583, T91085, AW014353, AW069654, AW362889, AW051869, R10100, AL022318, AR037576, and U61084.
HCWEQ14	634	1117318	1 - 355	15 - 369	R16298, AA488261, R15246, AA325932, F08114, W46162, H08289, U69190, R12912, and AC002985.
HDPWH41	635	1228148	1 - 1065	15 - 1079	AA206575, AL040482, N31555, AA830558, AA489584, AI866480, AA595742, AI983534, T51330, AA403243, and AC007450.
HDQEH61	636	1213567	1 - 902	15 - 916	AA232431, AF171063, AL049557,

					AF106019, and AL133598.
HDTDD72	637	587710	1 - 520	15 - 534	AI459473, AI065079, AI207423, AI064695, AI133218, AI133420, AI133314, AI061660, AI064797, AI888487, AL037870, AL037849, AL048429, AI884494, AI833147, AI717995, AI709394, AI832355, AI924211, AI720552, AI653760, AW007608, AI064831, C18852, AA669077, AI174665, AA468404, AI750150, AA533828, AI133004, AA659265, AA594949, AL037048, AA630170, AI912529, AI434498, AI459425, AA575977, AW275829, AA886596, AI215649, AW270021, AI124928, AA578589, AA548849, AI832732, AA098789, AI628930, AW004905, AI720986, AA630251, AI683207, AW149630, AA886490, AA595864, AI028073, AI880409, AW188463, AA075342, AI635477, AW168232, AI720912, AI133259, AA226261, AI766356, AA493969, AI557254, AW166013, AA650306, AA481885, AA224000, AA643797, AA522984, AA630934, AA635953, AA640561, AA081407, AA487595, AI523371, AA928597, AA641058, AA196188, AI174946, AI720139, AA223926, AI207597, AI917042, AA485715, AA715869, AI114770, AI581199, AI282481, AA434248, AA888285, AI457496, AA661972, AA610388, AA655025, AA654984, AI566184, AA565126, AA579042, AA468098, AI619745, AI281861, AI880360, AA846579, AI566210, AW148749, AI673024, AA490180, AW439689, AI459556, AW151854, AW105642, AA565898, AA640469, AI114764, AI114776, AW276852, AA653781, AA487063, AA494046, AI440020, AI719804, AA557411, AA525479, AI133099, AA554077, AA151927, AI749073, AA180944, AA564042, AI719813, AW264074, AA831811, AW170761, AA689249, AA658941, AA578602, AI749006, AI819696, AI557330, AA458961, AI525681, AA664578, AA708303, AI708946, AA541550, AA569249, C17580, AA069723, AI832960, AA715954, AI832523, AA621867, AI459634, AA152380, AA978232, AW165955, AA429018, AA487982, AA171686, AA469406, AA640693, AI133698, AA483365, AI453511, AA987421, AI630887, AI289950, AA654821,

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HFRBN02	638	1152485	1 - 975	15 - 989	
HKAIH72	639	1107045	1 - 1532	15 - 1546	AA767021, AW166918, AI766199, AI452639, AI057325, AW189378, AA810530, AA483372, AI866604, AW044075, AW021928, AI868618, AW365612, AW365576, AW365562, AW365564, AW365557, AW365563, AW062583, AW365608, W00829, AW365604, AW365616, AW365578, AW365618, AL119457, AL119399, AL119324, AW365558, AW365580, AL042544, AL134524, AW372827, AL134920, AL119443, AW392670, AW365605, AL119464, U46341, AL119497, AL119319, AW363220, AW384394, U46346, AL119444, Z99396, AL134902, AL119484, AL119363, AL119391, AL119355, AL119335, U46347, U46350, U46351, U46349, AL119418, AL119483, AL119341, AL119522, AL134531, AL119439, AL119496, AL119396, AL037205, AL042614, AI142134, AL134528, U46345, AL134527, AL134529, AL134538, AL042433, AL039912, AL042450, AL043029, AL042965, AL042975, AL042542, AL042970, AL043019, AL042984, AL042551, AL043003, AL119488, AF052573, AF043628,

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HMAAD90	640	1152487	1 - 321	15 - 335	AL036709, AA492039, AA480432, AI675759, AI310999, AI198128, AA470422, AI222500, AI222494, AI885387, AI417419, AI870576, AI362796, AA973526, F18212, F23380, AA255557, F26119, AA705897, AW188850, AA255573, F21180, AA887681, AI312521, AI814011, AA759050, AA970515, N98399, AI808283, AI300545, AA552854, AA548657, AI253561, AA552841, AI338845, AA405901, T95328, F25043, AI148243, AI473324, AA687476, AA813127, F30098, AA876096, H54563, T88808, AA225065, AA662762, F16777, AA875832, T84447, T07882, T95412, F18066, AW002081, AA652602, F31172, AI809118, AA652605, AI749046, AA594311, AA496173, AA482817, C01859, AI073587, AI625931, W30875, X65386, AA339117, C00492, AW378056, F23399, AA946903, AI719805, N88097, AA662678, AW150655, AF070653, AF044955, and X63217.
HMABQ71	641	1105540	1 - 550	15 - 564	
HPJEV95	642	1105131	1 - 513	15 - 527	AA159265.
HSKYR59	643	1219545	1 - 771	15 - 785	AI436567, AW025337, AW169182, AI569227, AI139724, AI141899, AI591301, AA854784, AW150213, AW247984, AI741314, AI300843, F36347, AI368644, AA595581, F36231, AA683311, AI474473, AI955025, AA587348, AI751754, F22837, AA989456, N30389, AW029404, F36593, AA305633, F20361, F36917, AW165991, F24206, AI042128, AI095107, F32977, R73935, AI129750, AA868044, AW405128, F17512, F18703, AA524164, AA468826, AI721079, AA320717, F22415, AA635920, AW024494, F17447, N92990, AA652198, AA877836, AA622113, R73861, F32883, W21200, AA365956, AA933941, AA112399, C04792, AA669314, AI890772, AA969137, AW170139, AW249737, AA133294, F31981, F33657, AA496585, F17060, R73865, AA570123, AA641698, AA947075, AA886447, D19843, N66357, AI858734, AA588495, AI242208, AI690305, AI491831, AI475178, AW246610, AW050899, AI866002, AA570038, AI561299, AI539028, AI627880, AI569328, AI524526, AI744256, AI828714, AL135661, AI919345, AI284131, C01182, AI310332, AW082594, AI383919, AI251830, AA883848, AI697324, AW102785,

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| | | | | | AB019565, AF118094, I09360, AL137459, AL133016, AL050108, AL050393, AF104032, AF119337, AL049452, AL117585, AF026816, AF090901, AL133072, AF091084, AF017437, AF113677, AL050024, Y11254, AJ238278, AL117460, AL122093, U91329, A58524, A58523, AL049314, S78214, X84990, AL133557, AL080137, AL122110, AL122049, Y16645, AF118064, AF118070, AL133080, AL122050, AF113699, X70685, AL117583, AL133077, AL133113, AL080124, AL122123, AF079765, E07361, AL133104, AF113019, AF113689, AF067728, AL049464, AF113691, AL122098, AF026124, AL080127, AF158248, S68736, X93495, E03348, AF090934, AL137557, A65341, Y11587, E04233, AL110196, Z82022, AJ242859, AF183393, AR059958, AL110221, E07108, X65873, AL133606, X63574, AL137648, AL050277, AL050149, L31396, AL050146, AL110225, AL117394, AL137527, L31397, AL110280, AL050138, AJ000937, AL137523, AL137463, AL117435, AF106862, AF090900, AL117457, AL096744, I03321, AL137550, AL137271, AL137538, A93350, AF017152, AL050116, I00734, AL133560, A08912, I26207, A77033, A77035, AL080159, AF087943, I33392, AL137560, U72620, E02349, AF090903, E00617, E00717, E00778, AF177401, AF146568, AF090896, U80742, U35846, AL133565, A03736, AL137521, AF111112, L19437, AL137526, U67958, AL133075, AL133014, E08263, E08264, M30514, AL050172, AF079763, S61953, X98834, AF003737, E08631, AL137556, AF153205, AL049938, AL110197, A07647, AL049283, Y09972, U96683, AF162270, AL049300, AL117440, AF185576, AL137476, AR038854, AL080074, X92070, AL133568, AL133067, U68387, AR038969, A90832, L30117, AF008439, AL133098, A45787, AF057300, AF057299, AL137283, X87582, AF111849, AF061573, X62580, U58996, AL137533, AJ006417, I41145, U49908, AF081197, AL137273, Y07905, I17767, X52128, Z37987, AL137480, AL122118, E05822, AR013797, U78525, AL110222, E06743, AF106827, AL117432, AL080154, AL080086, Y10080, AF081195, AL122111, AL023657, U49434, AF067790, AL050092, E02221, AL137292, AF051325, and AA113155. |
| HSWAM16 | 644 | 1151512 | 1 - 716 | 15 - 730 | AI436567, AW025337, AW169182, AI569227, AI139724, AI141899, AA854784, AW150213, AW247984, |

					AI591301, AI741314, AI300843, F36347, AI368644, AA595581, F36231, AA683311, AI474473, AA587348, AI751754, F22837, AA989456, N30389, AI955025, AW029404, AA305633, F36593, F20361, F36917, AW165991, F24206, AI095107, AI042128, F32977, R73935, AI129750, AA868044, AW405128, F17512, F18703, AA524164, AA468826, AA320717, AI721079, F22415, AA635920, AW024494, F17447, N92990, AA877836, AA652198, AA622113, F32883, R73861, AA365956, W21200, AA933941, AA112399, C04792, AA669314, AI890772, AA969137, AW170139, AW249737, AA133294, F31981, AA496585, F33657, F17060, AA570123, AA641698, R73865, AA947075, AA886447, D19843, N66357, AI858734, AA588495, AI242208, AI690305, AI491831, AI475178, AW246610, AW050899, AA570038, C01182, AA883848, AA857198, AI277546, R73947, F32287, AA887758, AA113155, H67249, X63422, X63423, and AC004221.
HSXCW82	645	1164013	1 - 1662	15 - 1676	AI583244, AI979252, AI814895, AI922918, AI745032, AI928093, AW418587, AW168141, AW247304, AI858297, AW247122, AW262999, AI677816, AW246178, AA614113, AI126200, AW001311, AA533914, AI540189, AI763049, AI400893, AA308589, AI949031, AA132446, AI343648, AA181775, AI435224, AI343775, AA099397, T16045, AI799105, AI752703, W33196, AA351180, AI961827, T33784, AI915117, AW269113, AA534922, T07513, AA640598, AW006679, AI690741, AI360483, AI493458, AA045885, AA806918, AI538745, AA626552, AI222003, AI027680, AW249906, AI081731, AI559452, AI541544, AW015343, AI308205, AA351396, AI749264, AI880176, AA813628, AI272365, AA666167, T08178, AI832597, C03506, AI961596, AW242908, R21336, AW383486, T34813, F05305, Z38330, AI860100, T30202, AA984906, AI669246, AI783574, AA132628, AA679701, T09495, AI804284, AA548605, AI904542, T33720, AI003186, AI689628, AI422626, AW198201, AA343212, T33820, AW237961, AI364459, N83716, AI204432, AI609608, AA766618, AA354129, AF195417, and AL137455.
HSYDB42	646	933545	1 - 936	15 - 950	AI719346, AA310771, AA233019, AA485496, AA411844, AA653679, AI129243, AI589063, AA829388,

					AA830191, AW300947, AI804787, AW206297, AA864496, AA485340, AA411764, AA831521, T47212, R10201, AA853167, AA810264, AA806768, T47213, AW206611, AA601948, R23156, AA483462, AI621256, AW382583, T91085, AW014353, AW069654, AW362889, AW051869, R10100, AL022318, AR037576, U61084, AL022318, AL022318, and AL022318.
HTXKJ79	647	1193059	1 - 1335	15 - 1349	AA313892, AA526825, N93427, AA130211, AA541790, AA513784, AI338742, AI608962, AI188269, AI041177, AI421860, AI857704, AI565802, AI189800, AA133994, AA857480, N92521, AI979046, AW081990, AA479643, AA401099, AA100939, AW131162, AI735040, AA555043, AW072841, AA308103, N35914, AI333478, AA847298, AA477100, AI336156, AA088505, AI160310, AI494501, AI038076, AI672758, AW405000, AA173369, AI333476, AA401012, AI369296, AI126897, AA694227, AA860645, AA149111, AA694117, AA088451, AI749360, AI088643, AA576203, AI718389, F20628, AA287074, F26081, N26049, D20716, AA721698, AA284531, AW273893, N53859, AI469668, AA502645, AI033719, AI420366, F20597, H98101, AI189806, N34652, AI636826, AA064910, AA917751, R98575, AA575937, AA421366, AA935737, W72160, AI186260, N32788, AA477331, AA158600, N31599, AA401100, AI193952, W42983, AI340972, C03853, AA479750, AA564885, AI034254, AI358074, AA992042, AA491987, H70695, N20951, AI128894, AA654495, R80833, AI333433, AA576225, AA421285, AA065189, W02947, AA782455, R92244, AI766437, AA582561, AA782733, AI784600, AA158981, AA035404, AA158621, W00676, H82450, AW191872, AI301326, AI749232, AA484185, H23877, AA890312, AI359315, AA112059, N73359, AA669504, R98056, AI073522, AI129443, N27821, AI689201, AA322157, T29641, H78773, W74603, AA197117, AW004770, AI581927, AA010122, AA035403, AA149110, H47164, R98576, AA664772, AA187062, N49759, R98296, R93304, AW273793, W42984, AW299631, H78692, AA340920, H47080, AA375173, AA121112, N88492, H91239, H65548, F33675, N91473, F36132, AA065188, AA010121, H91185, AA629726, N69009, AA135829, AA345017, N42658, F36640,

					AA380545, AA309814, W04169, AA664655, AA340603, AA635766, AA135830, N67959, AI718859, W38968, R19262, F18056, R11548, AA341429, AA552258, N87271, N87225, N86420, R11537, N70131, AA916347, AA594049, AA778920, AA845634, N83545, AI921962, H23878, N43981, AA886820, AA682552, AA089586, AA400947, AA771861, W21469, AA774487, AI041445, AA448241, T25854, R19273, N47052, AA742719, AA879068, N86264, U09813, and U51167.
HUSGQ19	648	1165320	1 - 1554	15 - 1568	AI866480, AI983534, AL040482, AI333019, AI274967, AW303755, AA206575, N31555, AW452025, AA496999, AA648602, N39479, AA648068, T68311, H95917, AA161418, T51330, AA630664, F37190, AA403243, AA830558, AA489584, AA262117, N98795, AA186599, F28863, N57116, AA595742, AA308992, and AC007450.
HUSZS75	649	1193982	1 - 505	15 - 519	AI598182, AI494294, AI590288, AI084196, AW194590, AI087964, AI198967, AI199039, AI741329, AI869985, AI244677, AI418883, AI089003, AI380816, AW194721, AA604430, W72682, AW292931, AA810856, AI584146, W77788, AI474979, AA994638, AA314116, AW364658, AW364613, and AC004531.
HWBDR25	650	1174365	1 - 1245	15 - 1259	AI214167, T06837, AL041965, T48053, AA706944, AA706964, H47902, AF083255, and AF147429.
HBGSS51	651	954855	1 - 328	15 - 342	AI820875, AW043723, AI733833, AI346364, AI367911, AI339790, AI304423, AI281355, AW002302, AI290437, AI222852, AI222849, AI284996, AI262350, AA377487, AI262351, AI304520, AI337436, AC012615, AC012615, and AC012615.

TABLE 4

Code	Description	Tissue	Organ	Cell Line	Disease	Vector
AR022	a_Heart	a_Heart				
AR023	a_Liver	a_Liver				
AR024	a_mammary gland	a_mammary gland				
AR025	a_Prostate	a_Prostate				
AR026	a_small intestine	a_small intestine				
AR027	a_Stomach	a_Stomach				
AR028	Blood B cells	Blood B cells				
AR029	Blood B cells activated	Blood B cells activated				
AR030	Blood B cells resting	Blood B cells resting				
AR031	Blood T cells activated	Blood T cells activated				
AR032	Blood T cells resting	Blood T cells resting				
AR033	brain	brain				
AR034	breast	breast				
AR035	breast cancer	breast cancer				
AR036	Cell Line CAOV3	Cell Line CAOV3				
AR037	cell line PA-1	cell line PA-1				
AR038	cell line transformed	cell line transformed				
AR039	colon	colon				
AR040	colon (9808co65R)	colon (9808co65R)				
AR041	colon (9809co15)	colon (9809co15)				
AR042	colon cancer	colon cancer				
AR043	colon cancer (9808co64R)	colon cancer (9808co64R)				
AR044	colon cancer 9809co14	colon cancer 9809co14				
AR045	corn clone 5	corn clone 5				
AR046	corn clone 6	corn clone 6				
AR047	corn clone2	corn clone2				
AR048	corn clone3	corn clone3				
AR049	Corn Clone4	Corn Clone4				
AR050	Donor II B Cells 24hrs	Donor II B Cells 24hrs				
AR051	Donor II B Cells 72hrs	Donor II B Cells 72hrs				
AR052	Donor II B-Cells 24 hrs.	Donor II B-Cells 24 hrs.				
AR053	Donor II B-Cells 72hrs	Donor II B-Cells 72hrs				
AR054	Donor II Resting B Cells	Donor II Resting B Cells				
AR055	Heart	Heart				
AR056	Human Lung (clonetech)	Human Lung (clonetech)				
AR057	Human Mammary (clontech)	Human Mammary (clontech)				
AR058	Human Thymus (clonetech)	Human Thymus (clonetech)				
AR059	Jurkat (unstimulated)	Jurkat (unstimulated)				
AR060	Kidney	Kidney				
AR061	Liver	Liver				
AR062	Liver (Clontech)	Liver (Clontech)				
AR063	Lymphocytes chronic	Lymphocytes				

	lymphocytic leukaemia	chronic lymphocytic leukaemia				
AR064	Lymphocytes diffuse large B cell lymphoma	Lymphocytes diffuse large B cell lymphoma				
AR065	Lymphocytes follicular lymphoma	Lymphocytes follicular lymphoma				
AR066	normal breast	normal breast				
AR067	Normal Ovarian (4004901)	Normal Ovarian (4004901)				
AR068	Normal Ovary 9508G045	Normal Ovary 9508G045				
AR069	Normal Ovary 9701G208	Normal Ovary 9701G208				
AR070	Normal Ovary 9806G005	Normal Ovary 9806G005				
AR071	Ovarian Cancer	Ovarian Cancer				
AR072	Ovarian Cancer (9702G001)	Ovarian Cancer (9702G001)				
AR073	Ovarian Cancer (9707G029)	Ovarian Cancer (9707G029)				
AR074	Ovarian Cancer (9804G011)	Ovarian Cancer (9804G011)				
AR075	Ovarian Cancer (9806G019)	Ovarian Cancer (9806G019)				
AR076	Ovarian Cancer (9807G017)	Ovarian Cancer (9807G017)				
AR077	Ovarian Cancer (9809G001)	Ovarian Cancer (9809G001)				
AR078	ovarian cancer 15799	ovarian cancer 15799				
AR079	Ovarian Cancer 17717AID	Ovarian Cancer 17717AID				
AR080	Ovarian Cancer 4004664B1	Ovarian Cancer 4004664B1				
AR081	Ovarian Cancer 4005315A1	Ovarian Cancer 4005315A1				
AR082	ovarian cancer 94127303	ovarian cancer 94127303				
AR083	Ovarian Cancer 96069304	Ovarian Cancer 96069304				
AR084	Ovarian Cancer 9707G029	Ovarian Cancer 9707G029				
AR085	Ovarian Cancer 9807G045	Ovarian Cancer 9807G045				
AR086	ovarian cancer 9809G001	ovarian cancer 9809G001				
AR087	Ovarian Cancer 9905C032RC	Ovarian Cancer 9905C032RC				
AR088	Ovarian cancer 9907 C00 3rd	Ovarian cancer 9907 C00 3rd				
AR089	Prostate	Prostate				
AR090	Prostate (clonetech)	Prostate (clonetech)				
AR091	prostate cancer	prostate cancer				
AR092	prostate cancer #15176	prostate cancer #15176				
AR093	prostate cancer #15509	prostate cancer #15509				
AR094	prostate cancer #15673	prostate cancer #15673				
AR095	Small Intestine (Clontech)	Small Intestine (Clontech)				

AR096	Spleen	Spleen				
AR097	Thymus T cells activated	Thymus T cells activated				
AR098	Thymus T cells resting	Thymus T cells resting				
AR099	Tonsil	Tonsil				
AR100	Tonsil geminal center centroblast	Tonsil geminal center centroblast				
AR101	Tonsil germinal center B cell	Tonsil germinal center B cell				
AR102	Tonsil lymph node	Tonsil lymph node				
AR103	Tonsil memory B cell	Tonsil memory B cell				
AR104	Whole Brain	Whole Brain				
AR105	Xenograft ES-2	Xenograft ES-2				
AR106	Xenograft SW626	Xenograft SW626				
H0002	Human Adult Heart	Human Adult Heart	Heart			Uni-ZAP XR
H0003	Human Adult Liver	Human Adult Liver	Liver			Uni-ZAP XR
H0004	Human Adult Spleen	Human Adult Spleen	Spleen			Uni-ZAP XR
H0008	Whole 6 Week Old Embryo					Uni-ZAP XR
H0009	Human Fetal Brain					Uni-ZAP XR
H0011	Human Fetal Kidney	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0012	Human Fetal Kidney	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0013	Human 8 Week Whole Embryo	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0014	Human Gall Bladder	Human Gall Bladder	Gall Bladder			Uni-ZAP XR
H0015	Human Gall Bladder, fraction II	Human Gall Bladder	Gall Bladder			Uni-ZAP XR
H0018	Human Greater Omentum, fII remake	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0019	Human Fetal Heart	Human Fetal Heart	Heart			pBluescript
H0020	Human Hippocampus	Human Hippocampus	Brain			Uni-ZAP XR
H0022	Jurkat Cells	Jurkat T-Cell Line				Lambda ZAP II
H0023	Human Fetal Lung					Uni-ZAP XR
H0024	Human Fetal Lung III	Human Fetal Lung	Lung			Uni-ZAP XR
H0026	Namalwa Cells	Namalwa B-Cell Line, EBV immortalized				Lambda ZAP II
H0027	Human Ovarian Cancer				disease	Uni-ZAP XR
H0028	Human Old Ovary	Human Old Ovary	Ovary			pBluescript
H0030	Human Placenta			--		Uni-ZAP XR
H0031	Human Placenta	Human Placenta	Placenta			Uni-ZAP XR
H0032	Human Prostate	Human Prostate	Prostate			Uni-ZAP XR
H0033	Human Pituitary	Human Pituitary				Uni-ZAP XR
H0035	Human Salivary Gland	Human Salivary Gland	Salivary gland			Uni-ZAP XR
H0036	Human Adult Small Intestine	Human Adult Small Intestine	Small Int.			Uni-ZAP XR
H0037	Human Adult Small Intestine	Human Adult Small Intestine	Small Int.			pBluescript
H0038	Human Testes	Human Testes	Testis			Uni-ZAP XR
H0039	Human Pancreas Tumor	Human Pancreas Tumor	Pancreas		disease	Uni-ZAP XR
H0040	Human Testes Tumor	Human Testes Tumor	Testis		disease	Uni-ZAP XR
H0041	Human Fetal Bone	Human Fetal Bone	Bone			Uni-ZAP XR
H0042	Human Adult Pulmonary	Human Adult Pulmonary	Lung			Uni-ZAP XR

H0046	Human Endometrial Tumor	Human Endometrial Tumor	Uterus		disease	Uni-ZAP XR
H0047	Human Fetal Liver	Human Fetal Liver	Liver			Uni-ZAP XR
H0049	Human Fetal Kidney	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0050	Human Fetal Heart	Human Fetal Heart	Heart			Uni-ZAP XR
H0051	Human Hippocampus	Human Hippocampus	Brain			Uni-ZAP XR
H0052	Human Cerebellum	Human Cerebellum	Brain			Uni-ZAP XR
H0056	Human Umbilical Vein, Endo. remake	Human Umbilical Vein Endothelial Cells	Umbilical vein			Uni-ZAP XR
H0057	Human Fetal Spleen					Uni-ZAP XR
H0058	Human Thymus Tumor	Human Thymus Tumor	Thymus		disease	Lambda ZAP II
H0059	Human Uterine Cancer	Human Uterine Cancer	Uterus		disease	Lambda ZAP II
H0060	Human Macrophage	Human Macrophage	Blood	Cell Line		pBluescript
H0061	Human Macrophage	Human Macrophage	Blood	Cell Line		pBluescript
H0063	Human Thymus	Human Thymus	Thymus			Uni-ZAP XR
H0068	Human Skin Tumor	Human Skin Tumor	Skin		disease	Uni-ZAP XR
H0069	Human Activated T-Cells	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0070	Human Pancreas	Human Pancreas	Pancreas			Uni-ZAP XR
H0071	Human Infant Adrenal Gland	Human Infant Adrenal Gland	Adrenal gland			Uni-ZAP XR
H0079	Human Whole 7 Week Old Embryo (II)	Human Whole 7 Week Old Embryo	Embryo			Uni-ZAP XR
H0080	Human Whole 6 Week Old Embryo (II)	Human Whole Six Week Old Embryo	Embryo			Lambda ZAP II
H0081	Human Fetal Epithelium (Skin)	Human Fetal Skin	Skin			Uni-ZAP XR
H0083	HUMAN JURKAT MEMBRANE BOUND POLYSOMES	Jurkat Cells				Uni-ZAP XR
H0085	Human Colon	Human Colon				Lambda ZAP II
H0086	Human epithelioid sarcoma	Epithelioid Sarcoma, muscle	Sk Muscle		disease	Uni-ZAP XR
H0087	Human Thymus	Human Thymus				pBluescript
H0090	Human T-Cell Lymphoma	T-Cell Lymphoma	T-Cell		disease	Uni-ZAP XR
H0096	Human Parotid Cancer	Human Parotid Cancer	Parotid		disease	Lambda ZAP II
H0097	Human Adult Heart, subtracted	Human Adult Heart	Heart			pBluescript
H0098	Human Adult Liver, subtracted	Human Adult Liver	Liver			Uni-ZAP XR
H0099	Human Lung Cancer, subtracted	Human Lung Cancer	Lung			pBluescript
H0100	Human Whole Six Week Old Embryo	Human Whole Six Week Old Embryo	Embryo			Uni-ZAP XR
H0101	Human 7 Weeks Old Embryo, subtracted	Human Whole 7 Week Old Embryo	Embryo			Lambda ZAP II
H0102	Human Whole 6 Week Old Embryo (II), subt	Human Whole Six Week Old Embryo	Embryo			pBluescript
H0105	Human Fetal Heart, subtracted	Human Fetal Heart	Heart			pBluescript
H0107	Human Infant Adrenal Gland, subtracted	Human Infant Adrenal Gland	Adrenal gland			pBluescript
H0109	Human Macrophage, subtracted	Macrophage	Blood	Cell Line		pBluescript
H0111	Human Placenta, subtracted	Human Placenta	Placenta			pBluescript
H0116	Human Thymus Tumor,	Human Thymus	Thymus			pBluescript

	subtracted	Tumor				
H0119	Human Pediatric Kidney	Human Pediatric Kidney	Kidney			Uni-ZAP XR
H0121	Human Cornea, subtracted	Human Cornea	eye			Uni-ZAP XR
H0122	Human Adult Skeletal Muscle	Human Skeletal Muscle	Sk Muscle			Uni-ZAP XR
H0123	Human Fetal Dura Mater	Human Fetal Dura Mater	Brain			Uni-ZAP XR
H0124	Human Rhabdomyosarcoma	Human Rhabdomyosarcoma	Sk Muscle		disease	Uni-ZAP XR
H0125	Cem cells cyclohexamide treated	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0129	Jurkat cells, thiouridine activated, fract II	Jurkat Cells				Uni-ZAP XR
H0130	LNCAP untreated	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
H0131	LNCAP + o.3nM R1881	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
H0132	LNCAP + 30nM R1881	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
H0134	Raji Cells, cyclohexamide treated	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0135	Human Synovial Sarcoma	Human Synovial Sarcoma	Synovium			Uni-ZAP XR
H0136	Supt Cells, cyclohexamide treated	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0140	Activated T-Cells, 8 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0141	Activated T-Cells, 12 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0144	Nine Week Old Early Stage Human	9 Wk Old Early Stage Human	Embryo			Uni-ZAP XR
H0149	7 Week Old Early Stage Human, subtracted	Human Whole 7 Week Old Embryo	Embryo			Uni-ZAP XR
H0150	Human Epididymus	Epididymis	Testis			Uni-ZAP XR
H0154	Human Fibrosarcoma	Human Skin Fibrosarcoma	Skin		disease	Uni-ZAP XR
H0156	Human Adrenal Gland Tumor	Human Adrenal Gland Tumor	Adrenal Gland		disease	Uni-ZAP XR
H0159	Activated T-Cells, 8 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0161	Activated T-Cells, 24 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0163	Human Synovium	Human Synovium	Synovium			Uni-ZAP XR
H0164	Human Trachea Tumor	Human Trachea Tumor	Trachea		disease	Uni-ZAP XR
H0165	Human Prostate Cancer, Stage B2	Human Prostate Cancer, stage B2	Prostate		disease	Uni-ZAP XR
H0166	Human Prostate Cancer, Stage B2 fraction	Human Prostate Cancer, stage B2	Prostate		disease	Uni-ZAP XR
H0168	Human Prostate Cancer, Stage C	Human Prostate Cancer, stage C	Prostate		disease	Uni-ZAP XR
H0169	Human Prostate Cancer, Stage C fraction	Human Prostate Cancer, stage C	Prostate		disease	Uni-ZAP XR
H0170	12 Week Old Early Stage Human	Twelve Week Old Early Stage Human	Embryo			Uni-ZAP XR
H0171	12 Week Old Early Stage Human, II	Twelve Week Old Early Stage Human	Embryo			Uni-ZAP XR
H0172	Human Fetal Brain, random primed	Human Fetal Brain	Brain			Lambda ZAP II
H0173	Human Cardiomyopathy, RNA remake	Human Cardiomyopathy	Heart		disease	Uni-ZAP XR
H0175	H. Adult Spleen, ziplox					pSport1
H0177	CAMA1Ee Cell Line	CAMA1Ee Cell	Breast	Cell Line		Uni-ZAP XR

H0178	Human Fetal Brain	Human Fetal Brain	Brain			Uni-ZAP XR
		Line				
H0179	Human Neutrophil	Human Neutrophil	Blood	Cell Line		Uni-ZAP XR
H0181	Human Primary Breast Cancer	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0182	Human Primary Breast Cancer	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0184	Human Colon Cancer, metasticized to live	Human Colon Cancer, metasticized to liver	Liver		disease	Lambda ZAP II
H0186	Activated T-Cell	T-Cells	Blood	Cell Line		Lambda ZAP II
H0187	Resting T-Cell	T-Cells	Blood	Cell Line		Lambda ZAP II
H0188	Human Normal Breast	Human Normal Breast	Breast			Uni-ZAP XR
H0189	Human Resting Macrophage	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0190	Human Activated Macrophage (LPS)	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0191	Human Activated Macrophage (LPS), thiour	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0192	Cem Cells, cyclohexamide treated, subtra	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0194	Human Cerebellum, subtracted	Human Cerebellum	Brain			pBluescript
H0196	Human Cardiomyopathy, subtracted	Human Cardiomyopathy	Heart			Uni-ZAP XR
H0197	Human Fetal Liver, subtracted	Human Fetal Liver	Liver			Uni-ZAP XR
H0199	Human Fetal Liver, subtracted, neg clone	Human Fetal Liver	Liver			Uni-ZAP XR
H0200	Human Greater Omentum, fract II remake,	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0201	Human Hippocampus, subtracted	Human Hippocampus	Brain			pBluescript
H0204	Human Colon Cancer, subtracted	Human Colon Cancer	Colon			pBluescript
H0207	LNCAP, differential expression	LNCAP Cell Line	Prostate	Cell Line		pBluescript
H0208	Early Stage Human Lung, subtracted	Human Fetal Lung	Lung			pBluescript
H0212	Human Prostate, subtracted	Human Prostate	Prostate			pBluescript
H0213	Human Pituitary, subtracted	Human Pituitary				Uni-ZAP XR
H0214	Raji cells, cyclohexamide treated, subtracted	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		pBluescript
H0216	Supt cells, cyclohexamide treated, subtracted	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		pBluescript
H0220	Activated T-Cells, 4 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0221	Activated T-Cells, 4 hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0224	Activated T-Cells, 12 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0229	Early Stage Human Brain,	Early Stage Human	Brain			Lambda

	random primed	Brain				ZAP II
H0230	Human Cardiomyopathy, diff exp	Human Cardiomyopathy	Heart		disease	Uni-ZAP XR
H0231	Human Colon, subtraction	Human Colon				pBluescript
H0232	Human Colon, differential expression	Human Colon				pBluescript
H0234	human colon cancer, metastatic to liver, differentially expressed	Human Colon Cancer, metasticized to liver	Liver			pBluescript
H0239	Human Kidney Tumor	Human Kidney Tumor	Kidney		disease	Uni-ZAP XR
H0240	C7MCF7 cell line, estrogen treated, Differential	C7MCF7 Cell Line, estrogen treated	Breast	Cell Line		Uni-ZAP XR
H0241	C7MCF7 cell line, estrogen treated, subtraction	C7MCF7 Cell Line, estrogen treated	Breast	Cell Line		Uni-ZAP XR
H0242	Human Fetal Heart, Differential (Fetal-Specific)	Human Fetal Heart	Heart			pBluescript
H0244	Human 8 Week Whole Embryo, subtracted	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0245	Human 8 Week Whole Embryo, differential	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0246	Human Fetal Liver-Enzyme subtraction	Human Fetal Liver	Liver			Uni-ZAP XR
H0247	Human Membrane Bound Polysomes- Enzyme Subtraction	Human Membrane Bound Polysomes	Blood	Cell Line		Uni-ZAP XR
H0249	HE7, subtracted by hybridization with E7 cDNA	Human Whole 7 Week Old Embryo	Embryo			Uni-ZAP XR
H0250	Human Activated Monocytes	Human Monocytes				Uni-ZAP XR
H0251	Human Chondrosarcoma	Human Chondrosarcoma	Cartilage		disease	Uni-ZAP XR
H0252	Human Osteosarcoma	Human Osteosarcoma	Bone		disease	Uni-ZAP XR
H0253	Human adult testis, large inserts	Human Adult Testis	Testis			Uni-ZAP XR
H0254	Breast Lymph node cDNA library	Breast Lymph Node	Lymph Node			Uni-ZAP XR
H0255	breast lymph node CDNA library	Breast Lymph Node	Lymph Node			Lambda ZAP II
H0256	HL-60, unstimulated	Human HL-60 Cells, unstimulated	Blood	Cell Line		Uni-ZAP XR
H0257	HL-60, PMA 4H	HL-60 Cells, PMA stimulated 4H	Blood	Cell Line		Uni-ZAP XR
H0261	H. cerebellum, Enzyme subtracted	Human Cerebellum	Brain			Uni-ZAP XR
H0263	human colon cancer	Human Colon Cancer	Colon		disease	Lambda ZAP II
H0264	human tonsils	Human Tonsil	Tonsil			Uni-ZAP XR
H0265	Activated T-Cell (12hs)/Thiouridine labelledEco	T-Cells	Blood	Cell Line		Uni-ZAP XR
H0266	Human Microvascular Endothelial Cells, fract. A	HMEC	Vein	Cell Line		Lambda ZAP II
H0267	Human Microvascular Endothelial Cells, fract. B	HMEC	Vein	Cell Line		Lambda ZAP II
H0268	Human Umbilical Vein Endothelial Cells, fract. A	HUVE Cells	Umbilical vein	Cell Line		Lambda ZAP II
H0269	Human Umbilical Vein	HUVE Cells	Umbilical	Cell Line		Lambda

	Endothelial Cells, fract. B		vein			ZAP II
H0270	HPAS (human pancreas, subtracted)	Human Pancreas	Pancreas			Uni-ZAP XR
H0271	Human Neutrophil, Activated	Human Neutrophil - Activated	Blood	Cell Line		Uni-ZAP XR
H0272	HUMAN TONSILS, FRACTION 2	Human Tonsil	Tonsil			Uni-ZAP XR
H0274	Human Adult Spleen, fractionII	Human Adult Spleen	Spleen			Uni-ZAP XR
H0275	Human Infant Adrenal Gland, Subtracted	Human Infant Adrenal Gland	Adrenal gland			pBluescript
H0280	K562 + PMA (36 hrs)	K562 Cell line	cell line	Cell Line		ZAP Express
H0282	HBGB"s differential consolidation	Human Primary Breast Cancer	Breast			Uni-ZAP XR
H0284	Human OB MG63 control fraction I	Human Osteoblastoma MG63 cell line	Bone	Cell Line		Uni-ZAP XR
H0286	Human OB MG63 treated (10 nM E2) fraction I	Human Osteoblastoma MG63 cell line	Bone	Cell Line		Uni-ZAP XR
H0288	Human OB HOS control fraction I	Human Osteoblastoma HOS cell line	Bone	Cell Line		Uni-ZAP XR
H0290	Human OB HOS treated (1 nM E2) fraction I	Human Osteoblastoma HOS cell line	Bone	Cell Line		Uni-ZAP XR
H0292	Human OB HOS treated (10 nM E2) fraction I	Human Osteoblastoma HOS cell line	Bone	Cell Line		Uni-ZAP XR
H0293	WI 38 cells					Uni-ZAP XR
H0294	Amniotic Cells - TNF induced	Amniotic Cells - TNF induced	Placenta	Cell Line		Uni-ZAP XR
H0295	Amniotic Cells - Primary Culture	Amniotic Cells - Primary Culture	Placenta	Cell Line		Uni-ZAP XR
H0305	CD34 positive cells (Cord Blood)	CD34 Positive Cells	Cord Blood			ZAP Express
H0306	CD34 depleted Buffy Coat (Cord Blood)	CD34 Depleted Buffy Coat (Cord Blood)	Cord Blood			ZAP Express
H0309	Human Chronic Synovitis	Synovium, Chronic Synovitis/ Osteoarthritis	Synovium		disease	Uni-ZAP XR
H0310	human caudate nucleus	Brain	Brain			Uni-ZAP XR
H0316	HUMAN STOMACH	Human Stomach	Stomach			Uni-ZAP XR
H0318	HUMAN B CELL LYMPHOMA	Human B Cell Lymphoma	Lymph Node		disease	Uni-ZAP XR
H0321	HUMAN SCHWANOMA	Schwanoma	Nerve		disease	Uni-ZAP XR
H0327	human corpus colosum	Human Corpus Callosum	Brain			Uni-ZAP XR
H0328	human ovarian cancer	Ovarian Cancer	Ovary		disease	Uni-ZAP XR
H0329	Dermatofibrosarcoma Protuberance	Dermatofibrosarcom a Protuberans	Skin		disease	Uni-ZAP XR
H0331	Hepatocellular Tumor	Hepatocellular Tumor	Liver		disease	Lambda ZAP II
H0333	Hemangiopericytoma	Hemangiopericytom a	Blood vessel		disease	Lambda ZAP II
H0334	Kidney cancer	Kidney Cancer	Kidney		disease	Uni-ZAP XR
H0339	Duodenum	Duodenum				Uni-ZAP XR
H0340	Corpus Callosum	Corpus Collosum-93052				Uni-ZAP XR
H0341	Bone Marrow Cell Line (RS4;11)	Bone Marrow Cell Line RS4;11	Bone Marrow	Cell Line		Uni-ZAP XR

H0343	stomach cancer (human)	Stomach Cancer - 5383A (human)			disease	Uni-ZAP XR
H0344	Adipose tissue (human)	Adipose - 6825A (human)				Uni-ZAP XR
H0346	Brain-medulloblastoma	Brain (Medulloblastoma)- 9405C006R	Brain		disease	Uni-ZAP XR
H0349	human adult liver cDNA library	Human Adult Liver	Liver			pCMVSport 1
H0351	Glioblastoma	Glioblastoma	Brain		disease	Uni-ZAP XR
H0352	wilm"s tumor	Wilm"s Tumor			disease	Uni-ZAP XR
H0354	Human Leukocytes	Human Leukocytes	Blood	Cell Line		pCMVSport 1
H0355	Human Liver	Human Liver, normal Adult				pCMVSport 1
H0356	Human Kidney	Human Kidney	Kidney			pCMVSport 1
H0357	H. Normalized Fetal Liver, II	Human Fetal Liver	Liver			Uni-ZAP XR
H0359	KMH2 cell line	KMH2				ZAP Express
H0361	Human rejected kidney	Human Rejected Kidney			disease	pBluescript
H0364	Human Osteoclastoma, excised	Human Osteoclastoma			disease	pBluescript
H0365	Osteoclastoma-normalized B	Human Osteoclastoma			disease	Uni-ZAP XR
H0366	L428 cell line	L428				ZAP Express
H0369	H. Atrophic Endometrium	Atrophic Endometrium and myometrium				Uni-ZAP XR
H0370	H. Lymph node breast Cancer	Lymph node with Met. Breast Cancer			disease	Uni-ZAP XR
H0373	Human Heart	Human Adult Heart	Heart			pCMVSport 1
H0374	Human Brain	Human Brain				pCMVSport 1
H0375	Human Lung	Human Lung				pCMVSport 1
H0376	Human Spleen	Human Adult Spleen	Spleen			pCMVSport 1
H0379	Human Tongue, frac 1	Human Tongue				pSport1
H0380	Human Tongue, frac 2	Human Tongue				pSport1
H0381	Bone Cancer	Bone Cancer			disease	Uni-ZAP XR
H0383	Human Prostate BPH, re-excision	Human Prostate BPH				Uni-ZAP XR
H0388	Human Rejected Kidney, 704 re-excision	Human Rejected Kidney			disease	pBluescript
H0390	Human Amygdala Depression, re-excision	Human Amygdala Depression			disease	pBluescript
H0391	H. Meniingima, M6	Human Meningima	brain			pSport1
H0392	H. Meningima, M1	Human Meningima	brain			pSport1
H0393	Fetal Liver, subtraction II	Human Fetal Liver	Liver			pBluescript
H0394	A-14 cell line	Redd-Sternberg cell				ZAP Express
H0395	A1-CELL LINE	Redd-Sternberg cell				ZAP Express
H0396	L1 Cell line	Redd-Sternberg cell				ZAP Express
H0399	Human Kidney Cortex, re-rescue	Human Kidney Cortex				Lambda ZAP II
H0400	Human Striatum Depression, re-rescue	Human Brain, Striatum Depression	Brain			Lambda ZAP II
H0401	Human Pituitary, subtracted V	Human Pituitary				pBluescript
H0402	CD34 depleted Buffy Coat	CD34 Depleted	Cord Blood			ZAP Express

	(Cord Blood), re-excision	Buffy Coat (Cord Blood)				
H0403	H. Umbilical Vein Endothelial Cells, IL4 induced	HUVE Cells	Umbilical vein	Cell Line		Uni-ZAP XR
H0404	H. Umbilical Vein endothelial cells, uninduced	HUVE Cells	Umbilical vein	Cell Line		Uni-ZAP XR
H0408	Human kidney Cortex, subtracted	Human Kidney Cortex				pBluescript
H0409	H. Striatum Depression, subtracted	Human Brain, Striatum Depression	Brain			pBluescript
H0411	H Female Bladder, Adult	Human Female Adult Bladder	Bladder			pSport1
H0412	Human umbilical vein endothelial cells, IL-4 induced	HUVE Cells	Umbilical vein	Cell Line		pSport1
H0413	Human Umbilical Vein Endothelial Cells, uninduced	HUVE Cells	Umbilical vein	Cell Line		pSport1
H0415	H. Ovarian Tumor, II, OV5232	Ovarian Tumor, OV5232	Ovary		disease	pCMVSport 2.0
H0416	Human Neutrophils, Activated, re-excision	Human Neutrophil - Activated	Blood	Cell Line		pBluescript
H0417	Human Pituitary, subtracted VIII	Human Pituitary				pBluescript
H0419	Bone Cancer, re-excision	Bone Cancer				Uni-ZAP XR
H0421	Human Bone Marrow, re-excision	Bone Marrow				pBluescript
H0422	T-Cell PHA 16 hrs	T-Cells	Blood	Cell Line		pSport1
H0423	T-Cell PHA 24 hrs	T-Cells	Blood	Cell Line		pSport1
H0424	Human Pituitary, subt IX	Human Pituitary				pBluescript
H0427	Human Adipose	Human Adipose, left hiplipoma				pSport1
H0428	Human Ovary	Human Ovary Tumor	Ovary			pSport1
H0429	K562 + PMA (36 hrs),re-excision	K562 Cell line	cell line	Cell Line		ZAP Express
H0431	H. Kidney Medulla, re-excision	Kidney medulla	Kidney			pBluescript
H0433	Human Umbilical Vein Endothelial cells, frac B, re-excision	HUVE Cells	Umbilical vein	Cell Line		pBluescript
H0434	Human Brain, striatum, re-excision	Human Brain, Striatum				pBluescript
H0435	Ovarian Tumor 10-3-95	Ovarian Tumor, OV350721	Ovary			pCMVSport 2.0
H0436	Resting T-Cell Library,II	T-Cells	Blood	Cell Line		pSport1
H0437	H Umbilical Vein Endothelial Cells, frac A, re-excision	HUVE Cells	Umbilical vein	Cell Line		Lambda ZAP II
H0438	H. Whole Brain #2, re-excision	Human Whole Brain #2				ZAP Express
H0440	FGF enriched mixed library	Mixed libraries				pCMVSport 1
H0441	H. Kidney Cortex, subtracted	Kidney cortex	Kidney			pBluescript
H0443	H. Adipose, subtracted	Human Adipose, left hiplipoma				pSport1
H0444	Spleen metastic melanoma	Spleen, Metastic malignant melanoma	Spleen		disease	pSport1
H0445	Spleen, Chronic	Human Spleen, CLL	Spleen		disease	pSport1

	lymphocytic leukemia				
H0448	Salivary gland, subtracted	Human Salivary Gland	Salivary gland			Lambda ZAP II
H0449	CD34+ cell, I	CD34 positive cells				pSport1
H0453	H. Kidney Pyramid, subtracted	Kidney pyramids	Kidney			pBluescript
H0455	H. Striatum Depression, subt	Human Brain, Striatum Depression	Brain			pBluescript
H0456	H Kidney Cortex, subtracted III	Human Kidney Cortex				pBluescript
H0457	Human Eosinophils	Human Eosinophils				pSport1
H0458	CD34+ cell, I, frac II	CD34 positive cells				pSport1
H0459	CD34+cells, II, FRACTION 2	CD34 positive cells				pCMVSport 2.0
H0477	Human Tonsil, Lib 3	Human Tonsil	Tonsil			pSport1
H0478	Salivary Gland, Lib 2	Human Salivary Gland	Salivary gland			pSport1
H0479	Salivary Gland, Lib 3	Human Salivary Gland	Salivary gland			pSport1
H0483	Breast Cancer cell line, MDA 36	Breast Cancer Cell line, MDA 36				pSport1
H0484	Breast Cancer Cell line, angiogenic	Breast Cancer Cell line, Angiogenic, 36T3				pSport1
H0485	Hodgkin"s Lymphoma I	Hodgkin"s Lymphoma I			disease	pCMVSport 2.0
H0486	Hodgkin"s Lymphoma II	Hodgkin"s Lymphoma II			disease	pCMVSport 2.0
H0487	Human Tonsils, lib I	Human Tonsils				pCMVSport 2.0
H0488	Human Tonsils, Lib 2	Human Tonsils				pCMVSport 2.0
H0489	Crohn"s Disease	Ileum	Intestine		disease	pSport1
H0492	HL-60, RA 4h, Subtracted	HL-60 Cells, RA stimulated for 4H	Blood	Cell Line		Uni-ZAP XR
H0494	Keratinocyte	Keratinocyte				pCMVSport 2.0
H0497	HEL cell line	HEL cell line		HEL 92.1.7		pSport1
H0505	Human Astrocyte	Human Astrocyte				pSport1
H0506	Ulcerative Colitis	Colon	Colon			pSport1
H0509	Liver, Hepatoma	Human Liver, Hepatoma, patient 8	Liver		disease	pCMVSport 3.0
H0510	Human Liver, normal	Human Liver, normal, Patient # 8	Liver			pCMVSport 3.0
H0512	Keratinocyte, lib 3	Keratinocyte				pCMVSport 2.0
H0517	Nasal polyps	Nasal polyps				pCMVSport 2.0
H0518	pBMC stimulated w/ poly I/C	pBMC stimulated with poly I/C				pCMVSport 3.0
H0519	NTERA2, control	NTERA2, Teratocarcinoma cell line				pCMVSport 3.0
H0520	NTERA2 + retinoic acid, 14 days	NTERA2, Teratocarcinoma cell line				pSport1
H0521	Primary Dendritic Cells, lib 1	Primary Dendritic cells				pCMVSport 3.0
H0522	Primary Dendritic cells,frac 2	Primary Dendritic cells				pCMVSport 3.0
H0525	PCR, pBMC I/C treated	pBMC stimulated				PCRII

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H0528	Poly[I]/Poly[C] Normal Lung Fibroblasts	Poly[I]/Poly[C] Normal Lung Fibroblasts				pCMVSport 3.0
		with poly I/C				
H0529	Myoloid Progenitor Cell Line	TF-1 Cell Line; Myoloid progenitor cell line				pCMVSport 3.0
H0530	Human Dermal Endothelial Cells,untreated	Human Dermal Endothelial Cells; untreated				pSport1
H0535	Human ovary tumor cell OV350721	Ovarian Tumor, OV350721	Ovary		disease	pSport1
H0537	H. Primary Dendritic Cells,lib 3	Primary Dendritic cells				pCMVSport 2.0
H0538	Merkel Cells	Merkel cells	Lymph node			pSport1
H0539	Pancreas Islet Cell Tumor	Pancreas Islet Cell Tumour	Pancreas		disease	pSport1
H0540	Skin, burned	Skin, leg burned	Skin			pSport1
H0542	T Cell helper I	Helper T cell				pCMVSport 3.0
H0543	T cell helper II	Helper T cell				pCMVSport 3.0
H0544	Human endometrial stromal cells	Human endometrial stromal cells				pCMVSport 3.0
H0545	Human endometrial stromal cells-treated with progesterone	Human endometrial stromal cells-treated with proge				pCMVSport 3.0
H0546	Human endometrial stromal cells-treated with estradiol	Human endometrial stromal cells-treated with estra				pCMVSport 3.0
H0547	NTERA2 teratocarcinoma cell line+retinoic acid (14 days)	NTERA2, Teratocarcinoma cell line				pSport1
H0549	H. Epididiymus, caput & corpus	Human Epididiymus, caput and corpus				Uni-ZAP XR
H0550	H. Epididiymus, cauda	Human Epididiymus, cauda				Uni-ZAP XR
H0551	Human Thymus Stromal Cells	Human Thymus Stromal Cells				pCMVSport 3.0
H0553	Human Placenta	Human Placenta				pCMVSport 3.0
H0555	Rejected Kidney, lib 4	Human Rejected Kidney	Kidney		disease	pCMVSport 3.0
H0556	Activated T-cell(12h)/Thiouridine-re-excision	T-Cells	Blood	Cell Line		Uni-ZAP XR
H0559	HL-60, PMA 4H, re-excision	HL-60 Cells, PMA stimulated 4H	Blood	Cell Line		Uni-ZAP XR
H0560	KMH2	KMH2				pCMVSport 3.0
H0561	L428	L428				pCMVSport 3.0
H0565	HUman Fetal Brain, normalized 100024F	Human Fetal Brain				pCMVSport 2.0
H0567	Human Fetal Brain, normalized A5002F	Human Fetal Brain				pCMVSport 2.0
H0569	Human Fetal Brain, normalized CO	Human Fetal Brain				pCMVSport 2.0
H0571	Human Fetal Brain, normalized C500HE	Human Fetal Brain				pCMVSport 2.0
H0572	Human Fetal Brain, normalized AC5002	Human Fetal Brain				pCMVSport 2.0

H0574	Hepatocellular Tumor; re-excision	Hepatocellular Tumor	Liver		disease	Lambda ZAP II
H0575	Human Adult Pulmonary;re-excision	Human Adult Pulmonary	Lung			Uni-ZAP XR
H0576	Resting T-Cell; re-excision	T-Cells	Blood	Cell Line		Lambda ZAP II
H0578	Human Fetal Thymus	Fetal Thymus	Thymus			pSport1
H0579	Pericardium	Pericardium	Heart			pSport1
H0580	Dendritic cells, pooled	Pooled dendritic cells				pCMVSport 3.0
H0581	Human Bone Marrow, treated	Human Bone Marrow	Bone Marrow			pCMVSport 3.0
H0583	B Cell lymphoma	B Cell Lymphoma	B Cell		disease	pCMVSport 3.0
H0584	Activated T-cells, 24 hrs,re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0585	Activated T-Cells,12 hrs,re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0586	Healing groin wound, 6.5 hours post incision	healing groin wound, 6.5 hours post incision - 2/	groin		disease	pCMVSport 3.0
H0587	Healing groin wound; 7.5 hours post incision	Groin-2/19/97	groin		disease	pCMVSport 3.0
H0589	CD34 positive cells (cord blood),re-ex	CD34 Positive Cells	Cord Blood			ZAP Express
H0590	Human adult small intestine,re-excision	Human Adult Small Intestine	Small Int.			Uni-ZAP XR
H0591	Human T-cell lymphoma;re-excision	T-Cell Lymphoma	T-Cell		disease	Uni-ZAP XR
H0592	Healing groin wound - zero hr post-incision (control)	HGS wound healing project; abdomen			disease	pCMVSport 3.0
H0593	Olfactory epithelium;nasalcavity	Olfactory epithelium from roof of left nasal cacit				pCMVSport 3.0
H0594	Human Lung Cancer;re-excision	Human Lung Cancer	Lung		disease	Lambda ZAP II
H0595	Stomach cancer (human);re-excision	Stomach Cancer - 5383A (human)			disease	Uni-ZAP XR
H0596	Human Colon Cancer;re-excision	Human Colon Cancer	Colon			Lambda ZAP II
H0597	Human Colon; re-excision	Human Colon				Lambda ZAP II
H0598	Human Stomach;re-excision	Human Stomach	Stomach			Uni-ZAP XR
H0599	Human Adult Heart;re-excision	Human Adult Heart	Heart			Uni-ZAP XR
H0600	Healing Abdomen wound;70&90 min post incision	Abdomen			disease	pCMVSport 3.0
H0601	Healing Abdomen Wound;15 days post incision	Abdomen			disease	pCMVSport 3.0
H0602	Healing Abdomen Wound;21&29 days post incision	Abdomen			disease	pCMVSport 3.0
H0604	Human Pituitary, re-excision	Human Pituitary				pBluescript
H0606	Human Primary Breast Cancer;re-excision	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0608	H. Leukocytes, control	H.Leukocytes				pCMVSport 1
H0610	H. Leukocytes,	H.Leukocytes				pCMVSport

	normalized cot 5A					1
H0611	H. Leukocytes, normalized cot 500 B	H.Leukocytes				pCMVSport 1
H0612	H.Leukocytes, normalized cot 50 B	H.Leukocytes				pCMVSport 1
H0613	H.Leukocytes, normalized cot 5B	H.Leukocytes				pCMVSport 1
H0614	H. Leukocytes, normalized cot 500 A	H.Leukocytes				pCMVSport 1
H0615	Human Ovarian Cancer Reexcision	Ovarian Cancer	Ovary		disease	Uni-ZAP XR
H0616	Human Testes, Reexcision	Human Testes	Testis			Uni-ZAP XR
H0617	Human Primary Breast Cancer Reexcision	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0618	Human Adult Testes, Large Inserts, Reexcision	Human Adult Testis	Testis			Uni-ZAP XR
H0619	Fetal Heart	Human Fetal Heart	Heart			Uni-ZAP XR
H0620	Human Fetal Kidney; Reexcision	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0622	Human Pancreas Tumor; Reexcision	Human Pancreas Tumor	Pancreas		disease	Uni-ZAP XR
H0623	Human Umbilical Vein; Reexcision	Human Umbilical Vein Endothelial Cells	Umbilical vein			Uni-ZAP XR
H0624	12 Week Early Stage Human II; Reexcision	Twelve Week Old Early Stage Human	Embryo			Uni-ZAP XR
H0625	Ku 812F Basophils Line	Ku 812F Basophils				pSport1
H0626	Saos2 Cells; Untreated	Saos2 Cell Line; Untreated				pSport1
H0627	Saos2 Cells; Vitamin D3 Treated	Saos2 Cell Line; Vitamin D3 Treated				pSport1
H0628	Human Pre-Differentiated Adipocytes	Human Pre-Differentiated Adipocytes				Uni-ZAP XR
H0629	Human Leukocyte, control #2	Human Normalized leukocyte				pCMVSport 1
H0631	Saos2, Dexamethosome Treated	Saos2 Cell Line; Dexamethosome Treated				pSport1
H0632	Hepatocellular Tumor;re-excision	Hepatocellular Tumor	Liver			Lambda ZAP II
H0633	Lung Carcinoma A549 TNFalpha activated	TNFalpha activated A549--Lung Carcinoma			disease	pSport1
H0634	Human Testes Tumor, re-excision	Human Testes Tumor	Testis		disease	Uni-ZAP XR
H0635	Human Activated T-Cells, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0637	Dendritic Cells From CD34 Cells	Dentritic cells from CD34 cells				pSport1
H0638	CD40 activated monocyte dendridic cells	CD40 activated monocyte dendridic cells				pSport1
H0639	Ficolled Human Stromal Cells, 5Fu treated	Ficolled Human Stromal Cells, 5Fu treated				Other
H0640	Ficolled Human Stromal Cells, Untreated	Ficolled Human Stromal Cells, Untreated				Other
H0641	LPS activated derived dendritic cells	LPS activated monocyte derived dendritic cells				pSport1
H0642	Hep G2 Cells, lambda	Hep G2 Cells				Other

	library					
H0643	Hep G2 Cells, PCR library	Hep G2 Cells				Other
H0644	Human Placenta (re-excision)	Human Placenta	Placenta			Uni-ZAP XR
H0645	Fetal Heart, re-excision	Human Fetal Heart	Heart			Uni-ZAP XR
H0646	Lung, Cancer (4005313 A3): Invasive Poorly Differentiated Lung Adenocarcinoma,	Metastatic squamous cell lung carcinoma, poorly di				pSport1
H0647	Lung, Cancer (4005163 B7): Invasive, Poorly Diff. Adenocarcinoma, Metastatic	Invasive poorly differentiated lung adenocarcinoma			disease	pSport1
H0648	Ovary, Cancer: (4004562 B6) Papillary Serous Cystic Neoplasm, Low Malignant Pot	Papillary Cstic neoplasm of low malignant potentia			disease	pSport1
H0649	Lung, Normal: (4005313 B1)	Normal Lung				pSport1
H0650	B-Cells	B-Cells				pCMVSport 3.0
H0651	Ovary, Normal: (9805C040R)	Normal Ovary				pSport1
H0652	Lung, Normal: (4005313 B1)	Normal Lung				pSport1
H0653	Stromal Cells	Stromal Cells				pSport1
H0654	Lung, Cancer: (4005313 A3) Invasive Poorly-differentiated Metastatic lung adenoc	Metastatic Squamous cell lung Carcinoma poorly dif				Other
H0656	B-cells (unstimulated)	B-cells (unstimulated)				pSport1
H0657	B-cells (stimulated)	B-cells (stimulated)				pSport1
H0658	Ovary, Cancer (9809C332): Poorly differentiated adenocarcinoma	9809C332- Poorly differentiate	Ovary & Fallopian Tubes		disease	pSport1
H0659	Ovary, Cancer (15395A1F): Grade II Papillary Carcinoma	Grade II Papillary Carcinoma, Ovary	Ovary		disease	pSport1
H0660	Ovary, Cancer: (15799A1F) Poorly differentiated carcinoma	Poorly differentiated carcinoma, ovary			disease	pSport1
H0661	Breast, Cancer: (4004943 A5)	Breast cancer			disease	pSport1
H0662	Breast, Normal: (4005522B2)	Normal Breast - #4005522(B2)	Breast			pSport1
H0663	Breast, Cancer: (4005522 A2)	Breast Cancer - #4005522(A2)	Breast		disease	pSport1
H0664	Breast, Cancer: (9806C012R)	Breast Cancer	Breast		disease	pSport1
H0665	Stromal cells 3.88	Stromal cells 3.88				pSport1
H0666	Ovary, Cancer: (4004332 A2)	Ovarian Cancer, Sample #4004332A2			disease	pSport1
H0667	Stromal cells(HBM3.18)	Stromal cell(HBM 3.18)				pSport1
H0668	stromal cell clone 2.5	stromal cell clone 2.5				pSport1
H0669	Breast, Cancer: (4005385 A2)	Breast Cancer (4005385A2)	Breast			pSport1
H0670	Ovary, Cancer(4004650 A3): Well-Differentiated	Ovarian Cancer - 4004650A3				pSport1

	Micropapillary Serous Carcinoma					
H0671	Breast, Cancer: (9802C02OE)	Breast Cancer-Sample # 9802C02OE				pSport1
H0672	Ovary, Cancer: (4004576 A8)	Ovarian Cancer(4004576A8)	Ovary			pSport1
H0673	Human Prostate Cancer, Stage B2; re-excision	Human Prostate Cancer, stage B2	Prostate			Uni-ZAP XR
H0674	Human Prostate Cancer, Stage C; re-excission	Human Prostate Cancer, stage C	Prostate			Uni-ZAP XR
H0675	Colon, Cancer: (9808C064R)	Colon Cancer 9808C064R				pCMVSport 3.0
H0676	Colon, Cancer: (9808C064R)-total RNA	Colon Cancer 9808C064R				pCMVSport 3.0
H0677	TNFR degenerate oligo	B-Cells				PCRII
H0682	Serous Papillary Adenocarcinoma	serous papillary adenocarcinoma (9606G304SPA3B)				pCMVSport 3.0
H0683	Ovarian Serous Papillary Adenocarcinoma	Serous papillary adenocarcinoma, stage 3C (9804G01				pCMVSport 3.0
H0684	Serous Papillary Adenocarcinoma	Ovarian Cancer-9810G606	Ovaries			pCMVSport 3.0
H0685	Adenocarcinoma of Ovary, Human Cell Line, # OVCAR-3	Adenocarcinoma of Ovary, Human Cell Line, # OVCAR-				pCMVSport 3.0
H0686	Adenocarcinoma of Ovary, Human Cell Line	Adenocarcinoma of Ovary, Human Cell Line, # SW-626				pCMVSport 3.0
H0687	Human normal ovary(#9610G215)	Human normal ovary(#9610G215)	Ovary			pCMVSport 3.0
H0688	Human Ovarian Cancer(#9807G017)	Human Ovarian cancer(#9807G017), mRNA from Maura Ru				pCMVSport 3.0
H0689	Ovarian Cancer	Ovarian Cancer, #9806G019				pCMVSport 3.0
H0690	Ovarian Cancer, # 9702G001	Ovarian Cancer, #9702G001				pCMVSport 3.0
H0691	Normal Ovary, #9710G208	normal ovary, #9710G208				pCMVSport 3.0
H0692	BLyS Receptor from Expression Cloning	B Cell Lymphoma	B Cell			pCMVSport 3.0
H0693	Normal Prostate #ODQ3958EN	Normal Prostate Tissue # ODQ3958EN				pCMVSport 3.0
H0694	Prostate gland adenocarcinoma	Prostate gland, adenocarcinoma, mod/diff, gleason	prostate gland			pCMVSport 3.0
H0695	mononucleocytes from patient	mononucleocytes from patient at Shady Grove Hospit				pCMVSport 3.0
N0006	Human Fetal Brain	Human Fetal Brain				
N0007	Human Hippocampus	Human Hippocampus				
N0009	Human Hippocampus, prescreened	Human Hippocampus				
S0001	Brain frontal cortex	Brain frontal cortex	Brain			Lambda ZAP II
S0002	Monocyte activated	Monocyte-activated	blood	Cell Line		Uni-ZAP XR
S0003	Human Osteoclastoma	Osteoclastoma	bone		disease	Uni-ZAP XR
S0004	Prostate	Prostate BPH	Prostate			Lambda

						ZAP II
S0006	Neuroblastoma	Human Neural Blastoma			disease	pCDNA
S0007	Early Stage Human Brain	Human Fetal Brain				Uni-ZAP XR
S0010	Human Amygdala	Amygdala				Uni-ZAP XR
S0011	STROMAL - OSTEOCLASTOMA	Osteoclastoma	bone		disease	Uni-ZAP XR
S0013	Prostate	Prostate	prostate			Uni-ZAP XR
S0015	Kidney medulla	Kidney medulla	Kidney			Uni-ZAP XR
S0016	Kidney Pyramids	Kidney pyramids	Kidney			Uni-ZAP XR
S0022	Human Osteoclastoma Stromal Cells - unamplified	Osteoclastoma Stromal Cells				Uni-ZAP XR
S0023	Human Kidney Cortex - unamplified	Human Kidney Cortex				
S0026	Stromal cell TF274	stromal cell	Bone marrow	Cell Line		Uni-ZAP XR
S0027	Smooth muscle, serum treated	Smooth muscle	Pulmanary artery	Cell Line		Uni-ZAP XR
S0028	Smooth muscle,control	Smooth muscle	Pulmanary artery	Cell Line		Uni-ZAP XR
S0031	Spinal cord	Spinal cord	spinal cord			Uni-ZAP XR
S0032	Smooth muscle-ILb induced	Smooth muscle	Pulmanary artery	Cell Line		Uni-ZAP XR
S0036	Human Substantia Nigra	Human Substantia Nigra				Uni-ZAP XR
S0037	Smooth muscle, IL1b induced	Smooth muscle	Pulmanary artery	Cell Line		Uni-ZAP XR
S0038	Human Whole Brain #2 - Oligo dT > 1.5Kb	Human Whole Brain #2				ZAP Express
S0040	Adipocytes	Human Adipocytes from Osteoclastoma				Uni-ZAP XR
S0044	Prostate BPH	prostate BPH	Prostate		disease	Uni-ZAP XR
S0045	Endothelial cells-control	Endothelial cell	endothelial cell-lung	Cell Line		Uni-ZAP XR
S0046	Endothelial-induced	Endothelial cell	endothelial cell-lung	Cell Line		Uni-ZAP XR
S0048	Human Hypothalamus, Alzheimer"s	Human Hypothalamus, Alzheimer"s			disease	Uni-ZAP XR
S0049	Human Brain, Striatum	Human Brain, Striatum				Uni-ZAP XR
S0050	Human Frontal Cortex, Schizophrenia	Human Frontal Cortex, Schizophrenia			disease	Uni-ZAP XR
S0051	Human Hypothalmus,Schizophrenia	Human Hypothalamus, Schizophrenia			disease	Uni-ZAP XR
S0052	neutrophils control	human neutrophils	blood	Cell Line		Uni-ZAP XR
S0053	Neutrophils IL-1 and LPS induced	human neutrophil induced	blood	Cell Line		Uni-ZAP XR
S0106	STRIATUM DEPRESSION		BRAIN		disease	Uni-ZAP XR
S0110	Brain Amygdala Depression		Brain		disease	Uni-ZAP XR
S0112	Hypothalamus		Brain			Uni-ZAP XR
S0114	Anergic T-cell	Anergic T-cell		Cell Line		Uni-ZAP XR
S0116	Bone marrow	Bone marrow	Bone marrow			Uni-ZAP XR
S0118	Smooth muscle control 2	Smooth muscle	Pulmanary artery	Cell Line		Uni-ZAP XR
S0126	Osteoblasts	Osteoblasts	Knee	Cell Line		Uni-ZAP XR
S0132	Epithelial-TNFa and INF induced	Airway Epithelial				Uni-ZAP XR

S0134	Apoptotic T-cell	apoptotic cells		Cell Line		Uni-ZAP XR
S0136	PERM TF274	stromal cell	Bone marrow	Cell Line		Lambda ZAP II
S0140	eosinophil-IL5 induced	eosinophil	lung	Cell Line		Uni-ZAP XR
S0142	Macrophage-oxLDL	macrophage-oxidized LDL treated	blood	Cell Line		Uni-ZAP XR
S0144	Macrophage (GM-CSF treated)	Macrophage (GM-CSF treated)				Uni-ZAP XR
S0146	prostate-edited	prostate BPH	Prostate			Uni-ZAP XR
S0148	Normal Prostate	Prostate	prostate			Uni-ZAP XR
S0150	LNCAP prostate cell line	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
S0152	PC3 Prostate cell line	PC3 prostate cell line				Uni-ZAP XR
S0168	Prostate/LNCAP, subtraction I	PC3 prostate cell line				pBluescript
S0176	Prostate, normal, subtraction I	Prostate	prostate			Uni-ZAP XR
S0180	Bone Marrow Stroma, TNF&LPS ind	Bone Marrow Stroma, TNF & LPS induced			disease	Uni-ZAP XR
S0182	Human B Cell 8866	Human B- Cell 8866				Uni-ZAP XR
S0188	Prostate,BPH, Lib 2	Human Prostate BPH			disease	pSport1
S0190	Prostate BPH,Lib 2, subtracted	Human Prostate BPH				pSport1
S0192	Synovial Fibroblasts (control)	Synovial Fibroblasts				pSport1
S0194	Synovial hypoxia	Synovial Fibroblasts				pSport1
S0196	Synovial IL-1/TNF stimulated	Synovial Fibroblasts				pSport1
S0206	Smooth Muscle- HASTE normalized	Smooth muscle	Pulmanary artery	Cell Line		pBluescript
S0208	Messangial cell, frac 1	Messangial cell				pSport1
S0210	Messangial cell, frac 2	Messangial cell				pSport1
S0212	Bone Marrow Stromal Cell, untreated	Bone Marrow Stromal Cell,untreated				pSport1
S0214	Human Osteoclastoma, re-excision	Osteoclastoma	bone		disease	Uni-ZAP XR
S0216	Neutrophils IL-1 and LPS induced	human neutrophil induced	blood	Cell Line		Uni-ZAP XR
S0218	Apoptotic T-cell, re-excision	apoptotic cells		Cell Line		Uni-ZAP XR
S0220	H. hypothalamus, frac A;re-excision	Hypothalamus	Brain			ZAP Express
S0222	H. Frontal cortex,epileptic;re-excision	H. Brain, Frontal Cortex, Epileptic	Brain		disease	Uni-ZAP XR
S0228	PSMIX	PBLS, 7TM receptor enriched				PCRII
S0238	PYFD	PYFD				PCRII
S0242	Synovial Fibroblasts (Il1/TNF), subt	Synovial Fibroblasts				pSport1
S0250	Human Osteoblasts II	Human Osteoblasts	Femur		disease	pCMVSport 2.0
S0252	7TM-PIMIX	PBLS, 7TM receptor enriched				PCRII
S0256	7TM-PHMIX	PBLS, 7TM receptor enriched				PCRII
S0258	7TM-PNMIX	PBLS, 7TM receptor enriched				PCRII

S0260	Spinal Cord, re-excision	Spinal cord	spinal cord			Uni-ZAP XR
S0266	PLMIX	PLMIX (Human Lung)	Lung			PCRII
S0268	PRMIX	PRMIX (Human Prostate)	prostate			PCRII
S0270	PTMIX	PTMIX (Human Thymus)	Thymus			PCRII
S0276	Synovial hypoxia-RSF subtracted	Synovial fobroblasts (rheumatoid)	Synovial tissue			pSport1
S0278	H Macrophage (GM-CSF treated), re-excision	Macrophage (GM-CSF treated)				Uni-ZAP XR
S0280	Human Adipose Tissue, re-excision	Human Adipose Tissue				Uni-ZAP XR
S0282	Brain Frontal Cortex, re-excision	Brain frontal cortex	Brain			Lambda ZAP II
S0294	Larynx tumor	Larynx tumor	Larynx, vocal cord		disease	pSport1
S0300	Frontal lobe, dementia; re-excision	Frontal Lobe dementia/Alzheimer's	Brain			Uni-ZAP XR
S0306	Larynx normal #10 261-273	Larynx normal				pSport1
S0308	Spleen/normal	Spleen normal				pSport1
S0310	Normal trachea	Normal trachea				pSport1
S0312	Human osteoarthritic; fraction II	Human osteoarthritic cartilage			disease	pSport1
S0314	Human osteoarthritis; fraction I	Human osteoarthritic cartilage			disease	pSport1
S0316	Human Normal Cartilage, Fraction I	Human Normal Cartilage				pSport1
S0318	Human Normal Cartilage Fraction II	Human Normal Cartilage				pSport1
S0324	Human Brain	Brain	Cerebellum			pSport1
S0328	Palate carcinoma	Palate carcinoma	Uvula		disease	pSport1
S0330	Palate normal	Palate normal	Uvula			pSport1
S0332	Pharynx carcinoma	Pharynx carcinoma	Hypopharynx			pSport1
S0334	Human Normal Cartilage Fraction III	Human Normal Cartilage				pSport1
S0336	Human Normal Cartilage Fraction IV	Human Normal Cartilage				pSport1
S0338	Human Osteoarthritic Cartilage Fraction III	Human osteoarthritic cartilage			disease	pSport1
S0342	Adipocytes; re-excision	Human Adipocytes from Osteoclastoma				Uni-ZAP XR
S0344	Macrophage-oxLDL; re-excision	macrophage-oxidized LDL treated	blood	Cell Line		Uni-ZAP XR
S0346	Human Amygdala; re-excision	Amygdala				Uni-ZAP XR
S0348	Cheek Carcinoma	Cheek Carcinoma			disease	pSport1
S0350	Pharynx Carcinoma	Pharynx carcinoma	Hypopharynx		disease	pSport1
S0354	Colon Normal II	Colon Normal	Colon			pSport1
S0356	Colon Carcinoma	Colon Carcinoma	Colon		disease	pSport1
S0358	Colon Normal III	Colon Normal	Colon			pSport1
S0360	Colon Tumor II	Colon Tumor	Colon		disease	pSport1
S0362	Human Gastrocnemius	Gastrocnemius muscle				pSport1
S0364	Human Quadriceps	Quadriceps muscle				pSport1
S0366	Human Soleus	Soleus Muscle				pSport1

S0370	Larynx carcinoma II	Larynx carcinoma			disease	pSport1
S0372	Larynx carcinoma III	Larynx carcinoma			disease	pSport1
S0374	Normal colon	Normal colon				pSport1
S0376	Colon Tumor	Colon Tumor			disease	pSport1
S0378	Pancreas normal PCA4 No	Pancreas Normal PCA4 No				pSport1
S0380	Pancreas Tumor PCA4 Tu	Pancreas Tumor PCA4 Tu			disease	pSport1
S0382	Larynx carcinoma IV	Larynx carcinoma			disease	pSport1
S0384	Tongue carcinoma	Tongue carcinoma			disease	pSport1
S0386	Human Whole Brain, re-excision	Whole brain	Brain			ZAP Express
S0388	Human Hypothalamus,schizophrenia, re-excision	Human Hypothalamus, Schizophrenia			disease	Uni-ZAP XR
S0390	Smooth muscle, control; re-excision	Smooth muscle	Pulmanary artery	Cell Line		Uni-ZAP XR
S0392	Salivary Gland	Salivary gland; normal				pSport1
S0396	Uterus; normal	Uterus; normal				pSport1
S0400	Brain; normal	Brain; normal				pSport1
S0402	Adrenal Gland,normal	Adrenal gland; normal				pSport1
S0404	Rectum normal	Rectum, normal				pSport1
S0406	Rectum tumour	Rectum tumour				pSport1
S0408	Colon, normal	Colon, normal				pSport1
S0410	Colon, tumour	Colon, tumour				pSport1
S0412	Temporal cortex-Alzheizmer; subtracted	Temporal cortex, alzheimer			disease	Other
S0414	Hippocampus, Alzheimer Subtracted	Hippocampus, Alzheimer Subtracted				Other
S0418	CHME Cell Line;treated 5 hrs	CHME Cell Line; treated				pCMVSport 3.0
S0420	CHME Cell Line,untreated	CHME Cell line, untreatetd				pSport1
S0422	Mo7e Cell Line GM-CSF treated (1ng/ml)	Mo7e Cell Line GM-CSF treated (1ng/ml)				pCMVSport 3.0
S0424	TF-1 Cell Line GM-CSF Treated	TF-1 Cell Line GM-CSF Treated				pSport1
S0426	Monocyte activated; re-excision	Monocyte-activated	blood	Cell Line		Uni-ZAP XR
S0428	Neutrophils control; re-excision	human neutrophils	blood	Cell Line		Uni-ZAP XR
S0430	Aryepiglottis Normal	Aryepiglottis Normal				pSport1
S0432	Sinus piniformis Tumour	Sinus piniformis Tumour				pSport1
S0434	Stomach Normal	Stomach Normal			disease	pSport1
S0436	Stomach Tumour	Stomach Tumour			disease	pSport1
S0438	Liver Normal Met5No	Liver Normal Met5No				pSport1
S0440	Liver Tumour Met 5 Tu	Liver Tumour				pSport1
S0442	Colon Normal	Colon Normal				pSport1
S0444	Colon Tumor	Colon Tumour			disease	pSport1
S0446	Tongue Tumour	Tongue Tumour				pSport1
S0448	Larynx Normal	Larynx Normal				pSport1
S0450	Larynx Tumour	Larynx Tumour				pSport1
S0452	Thymus	Thymus				pSport1
S0458	Thyroid Normal (SDCA2 No)	Thyroid normal				pSport1

S0460	Thyroid Tumour	Thyroid Tumour				pSport1
S0462	Thyroid Thyroiditis	Thyroid Thyroiditis				pSport1
S0464	Larynx Normal	Larynx Normal				pSport1
S0466	Larynx Tumor	Larynx Tumor			disease	pSport1
S0468	Ea.hy.926 cell line	Ea.hy.926 cell line				pSport1
S0472	Lung Mesothelium	PYBT				pSport1
S0474	Human blood platelets	Platelets	Blood platelets			Other
S0665	Human Amygdala; re-excision	Amygdala				Uni-ZAP XR
S3012	Smooth Muscle Serum Treated, Norm	Smooth muscle	Pulmanary artery	Cell Line		pBluescript
S3014	Smooth muscle, serum induced,re-exc	Smooth muscle	Pulmanary artery	Cell Line		pBluescript
S3018	TH1 cells	TH1 cells				Uni-ZAP XR
S3020	TH2 cells	TH2 cells				Uni-ZAP XR
S6014	H. hypothalamus, frac A	Hypothalamus	Brain			ZAP Express
S6016	H. Frontal Cortex, Epileptic	H. Brain, Frontal Cortex, Epileptic	Brain		disease	Uni-ZAP XR
S6022	H. Adipose Tissue	Human Adipose Tissue				Uni-ZAP XR
S6024	Alzheimers, spongy change	Alzheimer"s/Spongy change	Brain		disease	Uni-ZAP XR
S6026	Frontal Lobe, Dementia	Frontal Lobe dementia/Alzheimer's	Brain			Uni-ZAP XR
S6028	Human Manic Depression Tissue	Human Manic depression tissue	Brain		disease	Uni-ZAP XR
T0001	Human Brown Fat	Brown Fat				pBluescript SK-
T0002	Activated T-cells	Activated T-Cell, PBL fraction	Blood	Cell Line		pBluescript SK-
T0003	Human Fetal Lung	Human Fetal Lung				pBluescript SK-
T0004	Human White Fat	Human White Fat				pBluescript SK-
T0006	Human Pineal Gland	Human Pinneal Gland				pBluescript SK-
T0008	Colorectal Tumor	Colorectal Tumor			disease	pBluescript SK-
T0010	Human Infant Brain	Human Infant Brain				Other
T0023	Human Pancreatic Carcinoma	Human Pancreatic Carcinoma			disease	pBluescript SK-
T0039	HSA 172 Cells	Human HSA172 cell line				pBluescript SK-
T0040	HSC172 cells	SA172 Cells				pBluescript SK-
T0041	Jurkat T-cell G1 phase	Jurkat T-cell				pBluescript SK-
T0042	Jurkat T-Cell, S phase	Jurkat T-Cell Line				pBluescript SK-
T0047	T lymphocytes >70	T lymphocytes > 70				pBluescript SK-
T0048	Human Aortic Endothelium	Human Aortic Endothilium				pBluescript SK-
T0049	Aorta endothelial cells + TNF-a	Aorta endothelial cells				pBluescript SK-
T0060	Human White Adipose	Human White Fat				pBluescript SK-
T0067	Human Thyroid	Human Thyroid				pBluescript SK-
T0068	Normal Ovary,	Normal Ovary,				pBluescript

		Premenopausal	Premenopausal				SK-
T0069	Human Uterus, normal	Human Uterus, normal					pBluescript SK-
T0071	Human Bone Marrow	Human Bone Marrow					pBluescript SK-
T0074	Human Adult Retina	Human Adult Retina					pBluescriptI SK-
T0082	Human Adult Retina	Human Adult Retina					pBluescript SK-
T0086	Human Pancreatic Carcinoma -- Screened	Human Pancreatic Carcinoma			disease		pBluescript SK-
T0109	Human (HCC) cell line liver (mouse) metastasis, remake						pBluescript SK-
T0110	Human colon carcinoma (HCC) cell line, remake						pBluescript SK-
T0112	Human (Caco-2) cell line, adenocarcinoma, colon						pBluescript SK-
T0114	Human (Caco-2) cell line, adenocarcinoma, colon, remake						pBluescript SK-
T0115	Human Colon Carcinoma (HCC) cell line						pBluescript SK-
L0002	Atrium cDNA library Human heart						
L0005	Clontech human aorta polyA+ mRNA (#6572)						
L0015	Human						
L0021	Human adult (K.Okubo)						
L0022	Human adult lung 3" directed MboI cDNA						
L0033	Human chromosome 13q14 cDNA						
L0040	Human colon mucosa						
L0041	Human epidermal keratinocyte						
L0052	Human normalized K562-cDNA						
L0055	Human promyelocyte						
L0062	Human whole brain						
L0065	Liver HepG2 cell line.						
L0097	Subtracted human retinal pigment epithelium (RPE)						
L0105	Human aorta polyA+ (TFujiwara)	aorta					
L0109	Human brain cDNA	brain					
L0142	Human placenta cDNA (TFujiwara)	placenta					
L0143	Human placenta polyA+ (TFujiwara)	placenta					
L0149	DKFZphsnu1	subthalamic nucleus					
L0151	Human testis (C. De Smet)	testis					
L0157	Human fetal brain (TFujiwara)		brain				
L0163	Human heart cDNA (YNakamura)		heart				
L0179	Human lung adenocarcinoma (M.Wu)	lung adenocarcinoma		GLC-82			
L0194	Human pancreatic cancer cell line Patu 8988t	pancreatic cancer		Patu 8988t			
L0351	Infant brain, Bento Soares						BA, M13-

						derived
L0352	Normalized infant brain, Bento Soares					BA, M13-derived
L0355	P, Human foetal Brain Whole tissue					Bluescript
L0356	S, Human foetal Adrenals tissue					Bluescript
L0359	X, Human Liver tissue					Bluescript KS II+
L0360	Y, Human Placenta tissue					Bluescript KS II+
L0361	Stratagene ovary (#937217)		ovary			Bluescript SK
L0362	Stratagene ovarian cancer (#937219)					Bluescript SK-
L0363	NCI_CGAP_GC2	germ cell tumor				Bluescript SK-
L0364	NCI_CGAP_GC5	germ cell tumor				Bluescript SK-
L0366	Stratagene schizo brain S11	schizophrenic brain S-11 frontal lobe				Bluescript SK-
L0367	NCI_CGAP_Sch1	Schwannoma tumor				Bluescript SK-
L0368	NCI_CGAP_SS1	synovial sarcoma				Bluescript SK-
L0369	NCI_CGAP_AA1	adrenal adenoma	adrenal gland			Bluescript SK-
L0370	Johnston frontal cortex	pooled frontal lobe	brain			Bluescript SK-
L0371	NCI_CGAP_Br3	breast tumor	breast			Bluescript SK-
L0372	NCI_CGAP_Co12	colon tumor	colon			Bluescript SK-
L0373	NCI_CGAP_Co11	tumor	colon			Bluescript SK-
L0374	NCI_CGAP_Co2	tumor	colon			Bluescript SK-
L0375	NCI_CGAP_Kid6	kidney tumor	kidney			Bluescript SK-
L0376	NCI_CGAP_Lar1	larynx	larynx			Bluescript SK-
L0377	NCI_CGAP_HN2	squamous cell carcinoma from vocal cord	larynx			Bluescript SK-
L0378	NCI_CGAP_Lu1	lung tumor	lung			Bluescript SK-
L0379	NCI_CGAP_Lym3	lymphoma	lymph node			Bluescript SK-
L0381	NCI_CGAP_HN4	squamous cell carcinoma	pharynx			Bluescript SK-
L0382	NCI_CGAP_Pr25	epithelium (cell line)	prostate			Bluescript SK-
L0383	NCI_CGAP_Pr24	invasive tumor (cell line)	prostate			Bluescript SK-
L0384	NCI_CGAP_Pr23	prostate tumor	prostate			Bluescript SK-
L0386	NCI_CGAP_HN3	squamous cell carcinoma from base of tongue	tongue			Bluescript SK-
L0387	NCI_CGAP_GCB0	germinal center B-cells	tonsil			Bluescript SK-
L0388	NCI_CGAP_HN6	normal gingiva (cell line from				Bluescript SK-

		immortalized kerati				
L0389	NCI_CGAP_HN5	normal gingiva (cell line from primary keratinocyt				Bluescript SK-
L0393	B, Human Liver tissue					gt11
L0406	b4HB3MA Cot14.5					Lafmid A
L0411	1-NIB					Lafmid BA
L0416	b4HB3MA-Cot0.38-HAP-B					Lafmid BA
L0419	b4HB3MA-Cot109+103+85-Bio					Lafmid BA
L0420	b4HB3MA-Cot109+103-Bio					Lafmid BA
L0425	b4HB3MA-Cot18-Bio					Lafmid BA
L0427	b4HB3MA-FT20%-Biotin					Lafmid BA
L0435	Infant brain, LLNL array of Dr. M: Soares 1NIB					lafmid BA
L0438	normalized infant brain cDNA	total brain	brain			lafmid BA
L0439	Soares infant brain 1NIB		whole brain			Lafmid BA
L0441	2HB3MK					Lafmid BK
L0444	HB3MK					Lafmid BK
L0448	3HFLSK20					Lafmid K
L0454	Clontech adult human fat cell library HL1108A					lambda gt10
L0455	Human retina cDNA randomly primed sublibrary	retina	eye			lambda gt10
L0456	Human retina cDNA Tsp509I-cleaved sublibrary	retina	eye			lambda gt10
L0462	WATM1					lambda gt11
L0468	HE6W					lambda zap
L0471	Human fetal heart, Lambda ZAP Express					Lambda ZAP Express
L0475	KG1-a Lambda Zap Express cDNA library			KG1-a		Lambda Zap Express (Stratagene)
L0477	HPLA CCLee	placenta				Lambda ZAP II
L0480	Stratagene cat#937212 (1992)					Lambda ZAP, pBluescript SK(-)
L0481	CD34+DIRECTIONAL					Lambda ZAPII
L0483	Human pancreatic islet					Lambda ZAPII
L0485	STRATAGENE Human skeletal muscle cDNA library, cat. #936215.	skeletal muscle	leg muscle			Lambda ZAPII
L0493	NCI_CGAP_Ov26	papillary serous carcinoma	ovary			pAMP1
L0497	NCI_CGAP_HSC4	CD34+, CD38- from normal bone marrow donor	bone marrow			pAMP1
L0498	NCI_CGAP_HSC3	CD34+, T negative, patient with chronic myelogenou	bone marrow			pAMP1
L0499	NCI_CGAP_HSC2	stem cell 34+/38+	bone marrow			pAMP1
L0500	NCI_CGAP_Brn20	oligodendroglioma	brain			pAMP1
L0501	NCI_CGAP_Brn21	oligodendroglioma	brain			pAMP1

L0509	NCI_CGAP_Lu26	invasive adenocarcinoma	lung			pAMP1
L0510	NCI_CGAP_Ov33	borderline ovarian carcinoma	ovary			pAMP1
L0512	NCI_CGAP_Ov36	borderline ovarian carcinoma	ovary			pAMP1
L0513	NCI_CGAP_Ov37	early stage papillary serous carcinoma	ovary			pAMP1
L0515	NCI_CGAP_Ov32	papillary serous carcinoma	ovary			pAMP1
L0517	NCI_CGAP_Pr1					pAMP10
L0518	NCI_CGAP_Pr2					pAMP10
L0519	NCI_CGAP_Pr3					pAMP10
L0520	NCI_CGAP_Alv1	alveolar rhabdomyosarcoma				pAMP10
L0521	NCI_CGAP_Ew1	Ewing"s sarcoma				pAMP10
L0522	NCI_CGAP_Kid1	kidney				pAMP10
L0523	NCI_CGAP_Lip2	liposarcoma				pAMP10
L0525	NCI_CGAP_Li2	liver				pAMP10
L0526	NCI_CGAP_Pr12	metastatic prostate bone lesion				pAMP10
L0527	NCI_CGAP_Ov2	ovary				pAMP10
L0528	NCI_CGAP_Pr5	prostate				pAMP10
L0529	NCI_CGAP_Pr6	prostate				pAMP10
L0530	NCI_CGAP_Pr8	prostate				pAMP10
L0532	NCI_CGAP_Thy1	thyroid				pAMP10
L0533	NCI_CGAP_HSC1	stem cells	bone marrow			pAMP10
L0534	Chromosome 7 Fetal Brain cDNA Library	brain	brain			pAMP10
L0535	NCI_CGAP_Br5	infiltrating ductal carcinoma	breast			pAMP10
L0538	NCI_CGAP_Ov5	normal surface epithelium	ovary			pAMP10
L0539	Chromosome 7 Placental cDNA Library		placenta			pAMP10
L0541	NCI_CGAP_Pr7	low-grade prostatic neoplasia	prostate			pAMP10
L0542	NCI_CGAP_Pr11	normal prostatic epithelial cells	prostate			pAMP10
L0543	NCI_CGAP_Pr9	normal prostatic epithelial cells	prostate			pAMP10
L0544	NCI_CGAP_Pr4	prostatic intraepithelial neoplasia - high grade	prostate			pAMP10
L0545	NCI_CGAP_Pr4.1	prostatic intraepithelial neoplasia - high grade	prostate			pAMP10
L0551	NCI_CGAP_HN7	normal squamous epithelium, floor of mouth				pAMP10
L0558	NCI_CGAP_Ov40	endometrioid ovarian metastasis	ovary			pAMP10
L0559	NCI_CGAP_Ov39	papillary serous ovarian metastasis	ovary			pAMP10
L0560	NCI_CGAP_HN12	moderate to poorly differentiated invasive carcino	tongue			pAMP10
L0561	NCI_CGAP_HN11	normal squamous epithelium	tongue			pAMP10
L0562	Chromosome 7 HeLa			HeLa cell		pAMP10

	cDNA Library			line; ATCC		
L0563	Human Bone Marrow Stromal Fibroblast	bone marrow				pBluescript
L0564	Jia bone marrow stroma	bone marrow stroma				pBluescript
L0565	Normal Human Trabecular Bone Cells	Bone	Hip			pBluescript
L0581	Stratagene liver (#937224)		liver			pBluescript SK
L0584	Stratagene cDNA library Human heart, cat#936208					pBluescript SK(+)
L0586	HTCDL1					pBluescript SK(-)
L0587	Stratagene colon HT29 (#937221)					pBluescript SK-
L0588	Stratagene endothelial cell 937223					pBluescript SK-
L0589	Stratagene fetal retina 937202					pBluescript SK-
L0590	Stratagene fibroblast (#937212)					pBluescript SK-
L0591	Stratagene HeLa cell s3 937216					pBluescript SK-
L0592	Stratagene hNT neuron (#937233)					pBluescript SK-
L0593	Stratagene neuroepithelium (#937231)					pBluescript SK-
L0594	Stratagene neuroepithelium NT2RAMI 937234					pBluescript SK-
L0595	Stratagene NT2 neuronal precursor 937230	neuroepithelial cells	brain			pBluescript SK-
L0596	Stratagene colon (#937204)		colon			pBluescript SK-
L0597	Stratagene corneal stroma (#937222)		cornea			pBluescript SK-
L0598	Morton Fetal Cochlea	cochlea	ear			pBluescript SK-
L0599	Stratagene lung (#937210)		lung			pBluescript SK-
L0600	Weizmann Olfactory Epithelium	olfactory epithelium	nose			pBluescript SK-
L0601	Stratagene pancreas (#937208)		pancreas			pBluescript SK-
L0602	Pancreatic Islet	pancreatic islet	pancreas			pBluescript SK-
L0603	Stratagene placenta (#937225)		placenta			pBluescript SK-
L0604	Stratagene muscle 937209	muscle	skeletal muscle			pBluescript SK-
L0605	Stratagene fetal spleen (#937205)	fetal spleen	spleen			pBluescript SK-
L0606	NCI_CGAP_Lym5	follicular lymphoma	lymph node			pBluescript SK-
L0607	NCI_CGAP_Lym6	mantle cell lymphoma	lymph node			pBluescript SK-
L0608	Stratagene lung carcinoma 937218	lung carcinoma	lung	NCI-H69		pBluescript SK-
L0609	Schiller astrocytoma	astrocytoma	brain			pBluescript SK- (Stratagene)
L0611	Schiller meningioma	meningioma	brain			pBluescript

						SK-(Stratagene)
L0612	Schiller oligodendroglioma	oligodendroglioma	brain			pBluescript SK-(Stratagene)
L0615	22 week old human fetal liver cDNA library					pBluescriptII SK(-)
L0617	Chromosome 22 exon					pBluescriptII KS+
L0618	Chromosome 9 exon					pBluescriptII KS+
L0622	HM1					pcDNAII (Invitrogen)
L0623	HM3	pectoral muscle (after mastectomy)				pcDNAII (Invitrogen)
L0625	NCI_CGAP_AR1	bulk alveolar tumor				pCMV-SPORT2
L0626	NCI_CGAP_GC1	bulk germ cell seminoma				pCMV-SPORT2
L0627	NCI_CGAP_Co1	bulk tumor	colon			pCMV-SPORT2
L0628	NCI_CGAP_Ov1	ovary bulk tumor	ovary			pCMV-SPORT2
L0629	NCI_CGAP_Mel3	metastatic melanoma to bowel	bowel (skin primary)			pCMV-SPORT4
L0630	NCI_CGAP_CNS1	substantia nigra	brain			pCMV-SPORT4
L0631	NCI_CGAP_Br7		breast			pCMV-SPORT4
L0633	NCI_CGAP_Lu6	small cell carcinoma	lung			pCMV-SPORT4
L0634	NCI_CGAP_Ov8	serous adenocarcinoma	ovary			pCMV-SPORT4
L0635	NCI_CGAP_PNS1	dorsal root ganglion	peripheral nervous system			pCMV-SPORT4
L0636	NCI_CGAP_Pit1	four pooled pituitary adenomas	brain			pCMV-SPORT6
L0637	NCI_CGAP_Brn53	three pooled meningiomas	brain			pCMV-SPORT6
L0638	NCI_CGAP_Brn35	tumor, 5 pooled (see description)	brain			pCMV-SPORT6
L0639	NCI_CGAP_Brn52	tumor, 5 pooled (see description)	brain			pCMV-SPORT6
L0640	NCI_CGAP_Br18	four pooled high-grade tumors, including two prima	breast			pCMV-SPORT6
L0641	NCI_CGAP_Co17	juvenile granulosa tumor	colon			pCMV-SPORT6
L0642	NCI_CGAP_Co18	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0643	NCI_CGAP_Co19	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0644	NCI_CGAP_Co20	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0645	NCI_CGAP_Co21	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0646	NCI_CGAP_Co14	moderately-differentiated	colon			pCMV-SPORT6

		adenocarcinoma				
L0647	NCI_CGAP_Sar4	five pooled sarcomas, including myxoid liposarcoma	connective tissue			pCMV-SPORT6
L0648	NCI_CGAP_Eso2	squamous cell carcinoma	esophagus			pCMV-SPORT6
L0649	NCI_CGAP_GU1	2 pooled high-grade transitional cell tumors	genitourinary tract			pCMV-SPORT6
L0650	NCI_CGAP_Kid13	2 pooled Wilms" tumors, one primary and one metast	kidney			pCMV-SPORT6
L0651	NCI_CGAP_Kid8	renal cell tumor	kidney			pCMV-SPORT6
L0652	NCI_CGAP_Lu27	four pooled poorly-differentiated adenocarcinomas	lung			pCMV-SPORT6
L0653	NCI_CGAP_Lu28	two pooled squamous cell carcinomas	lung			pCMV-SPORT6
L0654	NCI_CGAP_Lu31		lung, cell line			pCMV-SPORT6
L0655	NCI_CGAP_Lym12	lymphoma, follicular mixed small and large cell	lymph node			pCMV-SPORT6
L0656	NCI_CGAP_Ov38	normal epithelium	ovary			pCMV-SPORT6
L0657	NCI_CGAP_Ov23	tumor, 5 pooled (see description)	ovary			pCMV-SPORT6
L0658	NCI_CGAP_Ov35	tumor, 5 pooled (see description)	ovary			pCMV-SPORT6
L0659	NCI_CGAP_Pan1	adenocarcinoma	pancreas			pCMV-SPORT6
L0661	NCI_CGAP_Mel15	malignant melanoma, metastatic to lymph node	skin			pCMV-SPORT6
L0662	NCI_CGAP_Gas4	poorly differentiated adenocarcinoma with signet r	stomach			pCMV-SPORT6
L0663	NCI_CGAP_Ut2	moderately-differentiated endometrial adenocarcino	uterus			pCMV-SPORT6
L0664	NCI_CGAP_Ut3	poorly-differentiated endometrial adenocarcinoma,	uterus			pCMV-SPORT6
L0665	NCI_CGAP_Ut4	serous papillary carcinoma, high grade, 2 pooled t	uterus			pCMV-SPORT6
L0666	NCI_CGAP_Ut1	well-differentiated endometrial adenocarcinoma, 7	uterus			pCMV-SPORT6
L0667	NCI_CGAP_CML1	myeloid cells, 18 pooled CML cases, BCR/ABL rearra	whole blood			pCMV-SPORT6
L0681	Stanley Frontal SN individual	frontal lobe (see description)	brain			pCR2.1 (Invitrogen)
L0684	Stanley Frontal SB pool 1	frontal lobe (see description)	brain			pCR2.1-TOPO (Invitrogen)
L0695	Human Glialblastoma Cell		Brain	BT-325		PCRII, Invitrogen

L0697	Testis 1					PGEM 5zf(+)
L0698	Testis 2					PGEM 5zf(+)
L0717	Gessler Wilms tumor					pSPORT1
L0720	PN001-Normal Human Prostate		prostate			pSport1
L0731	Soares_pregnant_uterus_ NbHPU		uterus			pT7T3-Pac
L0738	Human colorectal cancer					pT7T3D
L0740	Soares melanocyte 2NbHM	melanocyte			·	pT7T3D (Pharmacia) with a modified polylinker
L0741	Soares adult brain N2b4HB55Y	·	brain			pT7T3D (Pharmacia) with a modified polylinker
L0742	Soares adult brain N2b5HB55Y		brain			pT7T3D (Pharmacia) with a modified polylinker
L0743	Soares breast 2NbHBst		breast			pT7T3D (Pharmacia) with a modified polylinker
L0744	Soares breast 3NbHBst		breast			pT7T3D (Pharmacia) with a modified polylinker
L0745	Soares retina N2b4HR	retina	eye ·			pT7T3D (Pharmacia) with a modified polylinker
L0746	Soares retina N2b5HR	retina	eye			pT7T3D (Pharmacia) with a modified polylinker
L0747	Soares_fetal_heart_NbHH 19W		heart			pT7T3D (Pharmacia) with a modified polylinker
L0748	Soares fetal liver spleen 1NFLS		Liver and Spleen			pT7T3D (Pharmacia) with a modified polylinker
L0749	Soares_fetal_liver_spleen _1NFLS_S1		Liver and Spleen			pT7T3D (Pharmacia) with a modified polylinker
L0750	Soares_fetal_lung_NbHL1 9W		lung			pT7T3D (Pharmacia) with a modified

						polylinker
L0751	Soares ovary tumor NbHOT	ovarian tumor	ovary			pT7T3D (Pharmacia) with a modified polylinker
L0752	Soares_parathyroid_tumor _NbHPA	parathyroid tumor	parathyroid gland			pT7T3D (Pharmacia) with a modified polylinker
L0753	Soares_pineal_gland_N3H PG		pineal gland			pT7T3D (Pharmacia) with a modified polylinker
L0754	Soares placenta Nb2HP		placenta			pT7T3D (Pharmacia) with a modified polylinker
L0755	Soares_placenta_8to9wee ks_2NbHP8to9W		placenta			pT7T3D (Pharmacia) with a modified polylinker
L0756	Soares_multiple_sclerosis _2NbHMSP	multiple sclerosis lesions				pT7T3D (Pharmacia) with a modified polylinker V_TYPE
L0757	Soares_senescent_fibrobla sts_NbHSF	senescent fibroblast				pT7T3D (Pharmacia) with a modified polylinker V_TYPE
L0758	Soares_testis_NHT					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0759	Soares_total_fetus_Nb2H F8_9w					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0760	Barstead aorta HPLRB3	aorta				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0761	NCI_CGAP_CLL1	B-cell, chronic lymphotic leukemia				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0762	NCI_CGAP_Br1.1	breast				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0763	NCI_CGAP_Br2	breast				pT7T3D-Pac

						(Pharmacia) with a modified polylinker
L0764	NCI_CGAP_Co3	colon				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0765	NCI_CGAP_Co4	colon				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0766	NCI_CGAP_GCB1	germinal center B cell				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0767	NCI_CGAP_GC3	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0768	NCI_CGAP_GC4	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0769	NCI_CGAP_Brn25	anaplastic oligodendroglioma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0770	NCI_CGAP_Brn23	glioblastoma (pooled)	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0771	NCI_CGAP_Co8	adenocarcinoma	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0772	NCI_CGAP_Co10	colon tumor RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0773	NCI_CGAP_Co9	colon tumor RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0774	NCI_CGAP_Kid3		kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0775	NCI_CGAP_Kid5	2 pooled tumors (clear cell type)	kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker

L0776	NCI_CGAP_Lu5	carcinoid	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0777	Soares_NhHMPu_S1	Pooled human melanocyte, fetal heart, and pregnant	mixed (see below)			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0778	Barstead pancreas HPLRB1		pancreas			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0779	Soares_NFL_T_GBC_S1		pooled			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0780	Soares_NSF_F8_9W_OT_PA_P_S1		pooled			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0782	NCI_CGAP_Pr21	normal prostate	prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0783	NCI_CGAP_Pr22	normal prostate	prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0784	NCI_CGAP_Lei2	leiomyosarcoma	soft tissue			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0785	Barstead spleen HPLRB2		spleen			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0786	Soares_NbHFB		whole brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0787	NCI_CGAP_Sub1					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0788	NCI_CGAP_Sub2					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0789	NCI_CGAP_Sub3					pT7T3D-Pac (Pharmacia) with a modified

						polylinker
L0790	NCI_CGAP_Sub4					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0791	NCI_CGAP_Sub5					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0792	NCI_CGAP_Sub6					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0793	NCI_CGAP_Sub7					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0794	NCI_CGAP_GC6	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0796	NCI_CGAP_Brn50	medulloblastoma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0800	NCI_CGAP_Co16	colon tumor, RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0803	NCI_CGAP_Kid11		kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0804	NCI_CGAP_Kid12	2 pooled tumors (clear cell type)	kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0805	NCI_CGAP_Lu24	carcinoid	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0806	NCI_CGAP_Lu19	squamous cell carcinoma, poorly differentiated (4	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0807	NCI_CGAP_Ov18	fibrotheoma	ovary			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0808	Barstead prostate BPH HPLRB4 1		prostate			pT7T3D-Pac (Pharmacia) with a

						modified polylinker
L0809	NCI_CGAP_Pr28		prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L2242	subtracted 3" EST library		pancreas	AsPC-1(ATCC: CRL-1682)		pUC18
L2251	Human fetal lung	Fetal lung				

TABLE 5

OMIM Reference	Description
100710	Myasthenic syndrome, slow-channel congenital, 601462
103050	Autism, succinylpurinemic
103050	Adenylosuccinase deficiency
104770	Amyloidosis, secondary, susceptibility to
106165	Hypertension, essential, 145500
107280	Cerebrovascular disease, occlusive
107280	Alpha-1-antichymotrypsin deficiency
107300	Antithrombin III deficiency
107400	Emphysema
107400	Emphysema-cirrhosis
107670	Apolipoprotein A-II deficiency
107777	Diabetes insipidus, nephrogenic, autosomal recessive, 222000
108725	Atherosclerosis, susceptibility to
109690	Asthma, nocturnal, susceptibility to
109690	Obesity, susceptibility to
110700	Vivax malaria, susceptibility to
113721	Breast cancer
113900	Heart block, progressive familial, type I
114208	Malignant hyperthermia susceptibility 5, 601887
114208	Hypokalemic periodic paralysis, 170400
116806	Colorectal cancer
117700	[Hypoceruloplasminemia, hereditary]
117700	Hemosiderosis, systemic, due to aceruloplasminemia
119300	van der Woude syndrome
120120	Epidermolysis bullosa dystrophica, dominant, 131750
120120	Epidermolysis bullosa dystrophica, recessive, 226600
120120	Epidermolysis bullosa, pretibial, 131850
120260	Epiphyseal dysplasia, multiple, type 2, 600204
120436	Muir-Torre family cancer syndrome, 158320
120436	Turcot syndrome with glioblastoma, 276300
120436	Colorectal cancer, hereditary nonpolyposis, type 2
120620	SLE susceptibility
120620	CR1 deficiency
120700	C3 deficiency
120920	Measles, susceptibility to
120950	C8 deficiency, type I
120960	C8 deficiency, type II
122500	[Transcortin deficiency]
123101	Craniosynostosis, type 2
123829	Melanoma
123940	White sponge nevus, 193900

124030	Parkinsonism, susceptibility to
124030	Debrisoquine sensitivity
125264	Leukemia, acute nonlymphocytic
126340	Xeroderma pigmentosum, group D, 278730
126391	DNA ligase I deficiency
129490	Ectodermal dysplasia-3, anhidrotic
130410	Glutaricaciduria, type IIB
130500	Elliptocytosis-1
131210	Atherosclerosis, susceptibility to
133171	[Erythrocytosis, familial], 133100
133200	Erythrokeratodermia variabilis
134370	Factor H deficiency
134370	Hemolytic-uremic syndrome, 235400
134370	Membroproliferative glomerulonephritis
134570	Factor XIIIA deficiency
134580	Factor XIIIB deficiency
134790	Hyperferritinemia-cataract syndrome, 600886
135940	Ichthyosis vulgaris, 146700
136132	[Fish-odor syndrome], 602079
136836	Fucosyltransferase-6 deficiency
137600	Iridogoniodysgenesis syndrome
138140	Glucose transport defect, blood-brain barrier
138190	Diabetes mellitus, noninsulin-dependent
138320	Hemolytic anemia due to glutathione peroxidase deficiency
138570	Non-insulin dependent diabetes mellitus, susceptibility to
138981	Pulmonary alveolar proteinosis, 265120
139350	Epidermolytic hyperkeratosis, 113800
139350	Keratoderma, palmoplantar, nonepidermolytic
141750	Alpha-thalassemia/mental retardation syndrome, type 1
141800	Methemoglobinemias, alpha-
141800	Thalassemias, alpha-
141800	Erythremias, alpha-
141800	Heinz body anemias, alpha-
141850	Thalassemia, alpha-
141850	Erythrocytosis
141850	Heinz body anemia
141850	Hemoglobin H disease
141850	Hypochromic microcytic anemia
145001	Hyperparathyroidism-jaw tumor syndrome
145260	Pseudohypoaldosteronism, type II
145981	Hypocalciuric hypercalcemia, type II
146790	Lupus nephritis, susceptibility to
147141	Leukemia, acute lymphoblastic
147570	Interferon, immune, deficiency
147680	Severe combined immunodeficiency due to IL2 deficiency
147730	Interleukin-2 receptor, alpha chain, deficiency of

147781	Atopy, susceptibility to
148040	Epidermolysis bullosa simplex, Koebner, Dowling-Meara, and Weber-Cockayne types, 131900, 131760, 131800
148041	Pachyonychia congenita, Jadassohn-Lewandowsky type, 167200
148043	Meesmann corneal dystrophy, 122100
148070	Liver disease, susceptibility to, from hepatotoxins or viruses
150210	Lactoferrin-deficient neutrophils, 245480
150292	Epidermolysis bullosa, Herlitz junctional type, 226700
150310	Epidermolysis bullosa, Herlitz junctional type, 226700
150310	Epidermolysis bullosa, generalized atrophic benign, 226650
152445	Vohwinkel syndrome, 124500
152445	Erythrokeratoderma, progressive symmetric, 602036
156850	Cataract, congenital, with microphthalmia
157640	PEO with mitochondrial DNA deletions, type 1
159001	Muscular dystrophy, limb-girdle, type 1B
159440	Charcot-Marie-Tooth neuropathy-1B, 118200
159440	Dejerine-Sottas disease, myelin P-related, 145900
159440	Hypomyelination, congenital
160900	Myotonic dystrophy
164040	Leukemia, acute promyelocytic, NPM/RARA type
164953	Liposarcoma
168360	Paraneoplastic sensory neuropathy
168468	Metaphyseal chondrodysplasia, Murk Jansen type, 156400
169600	Hailey-Hailey disease
171760	Hypophosphatasia, adult, 146300
171760	Hypophosphatasia, infantile, 241500
172471	Glycogenosis, hepatic, autosomal
173610	Platelet alpha/delta storage pool deficiency
173850	Polio, susceptibility to
174000	Medullary cystic kidney disease, AD
174900	Polyposis, juvenile intestinal
176100	Porphyria cutanea tarda
176100	Porphyria, hepatoerythropoietic
178300	Ptosis, hereditary congenital, 1
179755	Renal cell carcinoma, papillary, 1
179820	[Hyperproreninemia]
180071	Retinitis pigmentosa, autosomal recessive
180250	Retinol binding protein, deficiency of
180380	Night blindness, congenital stationery, rhodopsin-related
180380	Retinitis pigmentosa, autosomal recessive
180380	Retinitis pigmentosa-4, autosomal dominant
181430	Scapuloperoneal syndrome, myopathic type
182280	Small-cell cancer of lung
182380	Glucose/galactose malabsorption
182381	Renal glucosuria, 253100
182860	Pyropoikilocytosis

182860	Spherocytosis, recessive
182860	Elliptocytosis-2
186580	Arthrocutaneouveal granulomatosis
186770	Leukemia, T-cell acute lymphocytic
186780	CD3, zeta chain, deficiency
186960	Leukemia/lymphoma, T-cell
187040	Leukemia-1, T-cell acute lymphoblastic
188070	Bleeding disorder due to defective thromboxane A2 receptor
188550	Thyroid papillary carcinoma
188826	Sorsby fundus dystrophy, 136900
189800	Preeclampsia/eclampsia
190000	Atransferrinemia
190040	Dermatofibrosarcoma protuberans
190040	Giant-cell fibroblastoma
190040	Meningioma, SIS-related
190182	Colon cancer
190182	Colorectal cancer, familial nonpolyposis, type 6
191030	Nemaline myopathy-1, 161800
191044	Cardiomyopathy, familial hypertrophic
191045	Cardiomyopathy, familial hypertrophic, 2, 115195
191092	Tuberous sclerosis-2
191315	Insensitivity to pain, congenital, with anhidrosis, 256800
192340	Diabetes insipidus, neurohypophyseal, 125700
203500	Alkaptonuria
208100	Arthrogryposis multiplex congenita, neurogenic
208250	Jacobs syndrome
217030	C3b inactivator deficiency
222900	Sucrose intolerance
227646	Fanconi anemia, type D
230000	Fucosidosis
230800	Gaucher disease
230800	Gaucher disease with cardiovascular calcification
231200	Bernard-Soulier syndrome
231550	Achalasia-addisonianism-alacrimia syndrome
232050	Propionicacidemia, type II or pccB type
233710	Chronic granulomatous disease due to deficiency of NCF-2
234200	Neurodegeneration with brain iron accumulation
236730	Urofacial syndrome
245200	Krabbe disease
246450	HMG-CoA lyase deficiency
246530	Leukotriene C4 synthase deficiency
247200	Miller-Dieker lissencephaly syndrome
248510	Mannosidosis, beta-
250100	Metachromatic leukodystrophy
250800	Methemoglobinemia, type I
250800	Methemoglobinemia, type II

252940	Sanfilippo syndrome, type D
254210	Myasthenia gravis, familial infantile
255800	Schwartz-Jampel syndrome
256540	Galactosialidosis
258501	3-methylglutaconicaciduria, type III
261510	Pseudo-Zellweger syndrome
262850	Plasmin inhibitor deficiency
264700	Pseudo-vitamin D dependency rickets 1
266200	Anemia, hemolytic, due to PK deficiency
271245	Spinocerebellar ataxia-8, infantile, with sensory neuropathy
271900	Canavan disease
276901	Usher syndrome, type 2
276902	Usher syndrome, type 3
278000	Wolman disease
278000	Cholesteryl ester storage disease
300008	Nephrolithiasis, type I, 310468
300008	Proteinuria, low molecular weight, with hypercalciuric nephrocalcinosis
300008	Dent disease, 300009
300008	Hypophosphatemia, type III
300047	Mental retardation, X-linked 20
301000	Thrombocytopenia, X-linked, 313900
301000	Wiskott-Aldrich syndrome
301220	Partington syndrome II
301300	Anemia, sideroblastic/hypochromic
301830	Arthrogryposis, X-linked (spinal muscular atrophy, infantile, X-linked)
302350	Nance-Horan syndrome
305400	Aarskog-Scott syndrome
306400	Chronic granulomatous disease, X-linked
308300	Incontinentia pigmenti, sporadic type
309470	Mental retardation, X-linked, syndromic-3, with spastic diplegia
309500	Renpenning syndrome-1
309585	Mental retardation, X-linked, syndromic-6, with gynecomastia and obesity
309610	Mental retardation, X-linked, syndromic-2, with dysmorphism and cerebral atrophy
311050	Optic atrophy, X-linked
311250	Ornithine transcarbamylase deficiency
312040	N syndrome, 310465
312610	Retinitis pigmentosa-3
314850	McLeod phenotype
600040	Colorectal cancer
600059	Retinitis pigmentosa-13
600095	Split hand/foot malformation, type 3
600101	Deafness, autosomal dominant 2

600105	Retinitis pigmentosa-12, autosomal recessive
600138	Retinitis pigmentosa-11
600140	Rubenstein-Taybi syndrome, 180849
600163	Long QT syndrome-3
600179	Leber congenital amaurosis, type I, 204000
600194	Ichthyosis bullosa of Siemens, 146800
600231	Palmoplantar keratoderma, Bothnia type
600273	Polycystic kidney disease, infantile severe, with tuberous sclerosis
600281	Non-insulin-dependent diabetes mellitus, 125853
600281	MODY, type 1, 125850
600332	Rippling muscle disease-1
600334	Tibial muscular dystrophy
600511	Schizophrenia-3
600512	Epilepsy, partial
600536	Myopathy, congenital
600584	Atrial septal defect with atrioventricular conduction defects, 108900
600650	Myopathy due to CPT II deficiency, 255110
600650	CPT deficiency, hepatic, type II, 600649
600722	Ceroid lipofuscinosis, neuronal, variant juvenile type, with granular osmiophilic deposits
600722	Ceroid lipofuscinosis, neuronal-1, infantile, 256730
600759	Alzheimer disease-4
600808	Enuresis, nocturnal, 2
600835	AIDS, resistance to
600882	Charcot-Marie-Tooth neuropathy-2B
600897	Cataract, zonular pulverulent-1, 116200
600919	Long QT syndrome-4 with sinus bradycardia
600923	Porphyria variegata, 176200
600956	Persistent Mullerian duct syndrome, type II, 261550
600957	Persistent Mullerian duct syndrome, type I, 261550
600977	Cone dystrophy, progressive
600995	Nephrotic syndrome, idiopathic, steroid-resistant
601105	Pycnodysostosis, 265800
601107	Dubin-Johnson syndrome, 237500
601130	Tolbutamide poor metabolizer
601154	Cardiomyopathy, dilated, 1E
601199	Neonatal hyperparathyroidism, 239200
601199	Hypocalcemia, autosomal dominant, 601198
601199	Hypocalciuric hypercalcemia, type I, 145980
601202	Cataract, anterior polar-2
601238	Cerebellar ataxia, Cayman type
601284	Hereditary hemorrhagic telangiectasia-2, 600376
601313	Polycystic kidney disease, adult type I, 173900
601412	Deafness, autosomal dominant 7
601471	Moebius syndrome-2
601494	Cardiomyopathy, familial, dilated-2

601518	Prostate cancer, hereditary, 1, 176807
601542	Rieger syndrome, type 1, 180500
601545	Lissencephaly-1
601556	Spinocerebellar ataxia-1, 164400
601652	Glaucoma 1A, primary open angle, juvenile-onset, 137750
601682	Glaucoma 1C, primary open angle
601744	Systemic lupus erythematosus, susceptibility to, 1
601769	Osteoporosis, involutional
601769	Rickets, vitamin D-resistant, 277440
601777	Cone dystrophy, progressive
601785	Carbohydrate-deficient glycoprotein syndrome, type I, 212065
601841	Protein C inhibitor deficiency
601846	Muscular dystrophy with rimmed vacuoles
601928	Monilethrix, 158000
601975	Ectodermal dysplasia/skin fragility syndrome
602014	Hypomagnesemia with secondary hypocalcemia
602082	Corneal dystrophy, Thiel-Behnke type
602116	Glioma
602153	Monilethrix, 158000
602216	Peutz-Jeghers syndrome, 175200
602225	Cone-rod retinal dystrophy-2, 120970
602225	Leber congenital amaurosis, type III
602477	Febrile convulsions, familial, 2
602491	Hyperlipidemia, familial combined, 1

Polynucleotide and Polypeptide Variants

[89]   The present invention is directed to variants of the polynucleotide sequence disclosed in SEQ ID NO:X or the complementary strand thereto, nucleotide sequences encoding the polypeptide of SEQ ID NO:Y, the nucleotide sequence of SEQ ID NO:X encoding the polypeptide sequence as defined in column 7 of Table 1A, nucleotide sequences encoding the polypeptide as defined in column 7 of Table 1A, the nucleotide sequence as defined in columns 8 and 9 of Table 2, nucleotide sequences encoding the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2, the nucleotide sequence as defined in column 6 of Table 1B, nucleotide sequences encoding the polypeptide encoded by the nucleotide sequence as defined in column 6 of Table 1B, the cDNA sequence contained in Clone ID NO:Z, and/or nucleotide sequences encoding the polypeptide encoded by the cDNA sequence contained in Clone ID NO:Z.

[90]   The present invention also encompasses variants of the polypeptide sequence disclosed in SEQ ID NO:Y, the polypeptide sequence as defined in column 7 of Table 1A, a polypeptide sequence encoded by the polynucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2, a polypeptide sequence encoded by the nucleotide sequence as defined in column 6 of Table 1B, a polypeptide sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, and/or a polypeptide sequence encoded by the cDNA sequence contained in Clone ID NO:Z.

[91]   "Variant" refers to a polynucleotide or polypeptide differing from the polynucleotide or polypeptide of the present invention, but retaining essential properties thereof. Generally, variants are overall closely similar, and, in many regions, identical to the polynucleotide or polypeptide of the present invention.

[92]   Thus, one aspect of the invention provides an isolated nucleic acid molecule comprising, or alternatively consisting of, a polynucleotide having a nucleotide sequence selected from the group consisting of: (a) a nucleotide sequence described in SEQ ID NO:X or contained in the cDNA sequence of Clone ID NO:Z; (b) a nucleotide sequence in SEQ ID NO:X or the cDNA in Clone ID NO:Z which encodes the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (c) a nucleotide sequence in SEQ ID NO:X or the cDNA in Clone ID NO:Z which encodes a mature polypeptide; (d) a nucleotide sequence in SEQ ID NO:X or the cDNA sequence of Clone ID NO:Z, which encodes a biologically active fragment of a polypeptide;

(e) a nucleotide sequence in SEQ ID NO:X or the cDNA sequence of Clone ID NO:Z, which encodes an antigenic fragment of a polypeptide; (f) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (g) a nucleotide sequence encoding a mature polypeptide of the amino acid sequence of SEQ ID NO:Y or the amino acid sequence encoded by the cDNA in Clone ID NO:Z; (h) a nucleotide sequence encoding a biologically active fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (i) a nucleotide sequence encoding an antigenic fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; and (j) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), or (i) above.

[93]   The present invention is also directed to nucleic acid molecules which comprise, or alternatively consist of, a nucleotide sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j) above, the nucleotide coding sequence in SEQ ID NO:X or the complementary strand thereto, the nucleotide coding sequence of the cDNA contained in Clone ID NO:Z or the complementary strand thereto, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA contained in Clone ID NO:Z, the nucleotide coding sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto, a nucleotide sequence encoding the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto, the nucleotide coding sequence in SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto, a nucleotide sequence encoding the polypeptide encoded by the nucleotide sequence in SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto, the nucleotide sequence in SEQ ID NO:X encoding the polypeptide sequence as defined in column 7 of Table 1A or the complementary strand thereto, nucleotide sequences encoding the polypeptide as defined in column 7 of Table 1A or the complementary strand thereto,

and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polynucleotides which hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides and nucleic acids.

[94]   In a preferred embodiment, the invention encompasses nucleic acid molecules which comprise, or alternatively, consist of a polynucleotide which hybridizes under stringent hybridization conditions, or alternatively, under lower stringency conditions, to a polynucleotide in (a), (b), (c), (d), (e), (f), (g), (h), or (i), above, as are polypeptides encoded by these polynucleotides. In another preferred embodiment, polynucleotides which hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions, or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[95]   In another embodiment, the invention provides a purified protein comprising, or alternatively consisting of, a polypeptide having an amino acid sequence selected from the group consisting of: (a) the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (b) the amino acid sequence of a mature form of a polypeptide having the amino acid sequence of SEQ ID NO:Y or the amino acid sequence encoded by the cDNA in Clone ID NO:Z; (c) the amino acid sequence of a biologically active fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; and (d) the amino acid sequence of an antigenic fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z.

[96].   The present invention is also directed to proteins which comprise, or alternatively consist of, an amino acid sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, any of the amino acid sequences in (a), (b), (c), or (d), above, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence encoded by the cDNA contained in Clone ID NO:Z, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:B as defined in column 6 of Table 1B, the amino acid sequence as defined in column 7 of Table 1A, an amino acid sequence encoded by the nucleotide

sequence in SEQ ID NO:X, and an amino acid sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X. Fragments of these polypeptides are also provided (e.g., those fragments described herein). Further proteins encoded by polynucleotides which hybridize to the complement of the nucleic acid molecules encoding these amino acid sequences under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are the polynucleotides encoding these proteins.

[97]   By a nucleic acid having a nucleotide sequence at least, for example, 95% "identical" to a reference nucleotide sequence of the present invention, it is intended that the nucleotide sequence of the nucleic acid is identical to the reference sequence except that the nucleotide sequence may include up to five point mutations per each 100 nucleotides of the reference nucleotide sequence encoding the polypeptide. In other words, to obtain a nucleic acid having a nucleotide sequence at least 95% identical to a reference nucleotide sequence, up to 5% of the nucleotides in the reference sequence may be deleted or substituted with another nucleotide, or a number of nucleotides up to 5% of the total nucleotides in the reference sequence may be inserted into the reference sequence. The query sequence may be an entire sequence referred to in Table 1A or 2 as the ORF (open reading frame), or any fragment specified as described herein.

[98]   As a practical matter, whether any particular nucleic acid molecule or polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a nucleotide sequence of the present invention can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci. 6:237-245 (1990)). In a sequence alignment the query and subject sequences are both DNA sequences. An RNA sequence can be compared by converting U's to T's. The result of said global sequence alignment is expressed as percent identity. Preferred parameters used in a FASTDB alignment of DNA sequences to calculate percent identity are: Matrix=Unitary, k-tuple=4, Mismatch Penalty=1, Joining Penalty=30, Randomization Group Length=0, Cutoff Score=1, Gap Penalty=5, Gap Size Penalty 0.05, Window Size=500 or the length of the subject nucleotide sequence, whichever is shorter.

[99]   If the subject sequence is shorter than the query sequence because of 5' or 3'

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deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for 5' and 3' truncations of the subject sequence when calculating percent identity. For subject sequences truncated at the 5' or 3' ends, relative to the query sequence, the percent identity is corrected by calculating the number of bases of the query sequence that are 5' and 3' of the subject sequence, which are not matched/aligned, as a percent of the total bases of the query sequence. Whether a nucleotide is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This corrected score is what is used for the purposes of the present invention. Only bases outside the 5' and 3' bases of the subject sequence, as displayed by the FASTDB alignment, which are not matched/aligned with the query sequence, are calculated for the purposes of manually adjusting the percent identity score.

[100]   For example, a 90 base subject sequence is aligned to a 100 base query sequence to determine percent identity. The deletions occur at the 5' end of the subject sequence and therefore, the FASTDB alignment does not show a matched/alignment of the first 10 bases at 5' end. The 10 unpaired bases represent 10% of the sequence (number of bases at the 5' and 3' ends not matched/total number of bases in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 bases were perfectly matched the final percent identity would be 90%. In another example, a 90 base subject sequence is compared with a 100 base query sequence. This time the deletions are internal deletions so that there are no bases on the 5' or 3' of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only bases 5' and 3' of the subject sequence which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to be made for the purposes of the present invention.

[101]   By a polypeptide having an amino acid sequence at least, for example, 95% "identical" to a query amino acid sequence of the present invention, it is intended that the amino acid sequence of the subject polypeptide is identical to the query sequence except that the subject polypeptide sequence may include up to five amino acid alterations per each 100 amino acids of the query amino acid sequence. In other words, to obtain a polypeptide having an amino acid sequence at least 95% identical to a query amino acid sequence, up to

5% of the amino acid residues in the subject sequence may be inserted, deleted, (indels) or substituted with another amino acid. These alterations of the reference sequence may occur at the amino or carboxy terminal positions of the reference amino acid sequence or anywhere between those terminal positions, interspersed either individually among residues in the reference sequence or in one or more contiguous groups within the reference sequence.

[102]   As a practical matter, whether any particular polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to, for instance, the amino acid sequence of a polypeptide referred to in Table 1A (e.g., the amino acid sequence identified in column 6) or Table 2 (e.g., the amino acid sequence of the polypeptide encoded by the polynucleotide sequence defined in columns 8 and 9 of Table 2) or a fragment thereof, the amino acid sequence of the polypeptide encoded by the polynucleotide sequence in SEQ ID NO:B as defined in column 6 of Table 1B or a fragment thereof, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X or a fragment thereof, or the amino acid sequence of the polypeptide encoded by cDNA contained in Clone ID NO:Z, or a fragment thereof, can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci.6:237-245 (1990)). In a sequence alignment the query and subject sequences are either both nucleotide sequences or both amino acid sequences. The result of said global sequence alignment is expressed as percent identity. Preferred parameters used in a FASTDB amino acid alignment are: Matrix=PAM 0, k-tuple=2, Mismatch Penalty=1, Joining Penalty=20, Randomization Group Length=0, Cutoff Score=1, Window Size=sequence length, Gap Penalty=5, Gap Size Penalty=0.05, Window Size=500 or the length of the subject amino acid sequence, whichever is shorter.

[103]   If the subject sequence is shorter than the query sequence due to N- or C-terminal deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for N- and C-terminal truncations of the subject sequence when calculating global percent identity. For subject sequences truncated at the N- and C-termini, relative to the query sequence, the percent identity is corrected by calculating the number of residues of the query sequence that are N- and C-terminal of the subject sequence, which are not matched/aligned with a corresponding

subject residue, as a percent of the total bases of the query sequence. Whether a residue is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This final percent identity score is what is used for the purposes of the present invention. Only residues to the N- and C-termini of the subject sequence, which are not matched/aligned with the query sequence, are considered for the purposes of manually adjusting the percent identity score. That is, only query residue positions outside the farthest N- and C- terminal residues of the subject sequence.

[104]   For example, a 90 amino acid residue subject sequence is aligned with a 100 residue query sequence to determine percent identity. The deletion occurs at the N-terminus of the subject sequence and therefore, the FASTDB alignment does not show a matching/alignment of the first 10 residues at the N-terminus. The 10 unpaired residues represent 10% of the sequence (number of residues at the N- and C- termini not matched/total number of residues in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 residues were perfectly matched the final percent identity would be 90%. In another example, a 90 residue subject sequence is compared with a 100 residue query sequence. This time the deletions are internal deletions so there are no residues at the N- or C-termini of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only residue positions outside the N- and C-terminal ends of the subject sequence, as displayed in the FASTDB alignment, which are not matched/aligned with the query sequnce are manually corrected for. No other manual corrections are to made for the purposes of the present invention.

[105]   The polynucleotide variants of the invention may contain alterations in the coding regions, non-coding regions, or both. Especially preferred are polynucleotide variants containing alterations which produce silent substitutions, additions, or deletions, but do not alter the properties or activities of the encoded polypeptide. Nucleotide variants produced by silent substitutions due to the degeneracy of the genetic code are preferred. Moreover, polypeptide variants in which less than 50, less than 40, less than 30, less than 20, less than 10, or 5-50, 5-25, 5-10, 1-5, or 1-2 amino acids are substituted, deleted, or added in any combination are also preferred. Polynucleotide variants can be produced for a

variety of reasons, e.g., to optimize codon expression for a particular host (change codons in the human mRNA to those preferred by a bacterial host such as E. coli).

[106] Naturally occurring variants are called "allelic variants," and refer to one of several alternate forms of a gene occupying a given locus on a chromosome of an organism. (Genes II, Lewin, B., ed., John Wiley & Sons, New York (1985)). These allelic variants can vary at either the polynucleotide and/or polypeptide level and are included in the present invention. Alternatively, non-naturally occurring variants may be produced by mutagenesis techniques or by direct synthesis.

[107] Using known methods of protein engineering and recombinant DNA technology, variants may be generated to improve or alter the characteristics of the polypeptides of the present invention. For instance, one or more amino acids can be deleted from the N-terminus or C-terminus of the polypeptide of the present invention without substantial loss of biological function. As an example, Ron et al. (J. Biol. Chem. 268: 2984-2988 (1993)) reported variant KGF proteins having heparin binding activity even after deleting 3, 8, or 27 amino-terminal amino acid residues. Similarly, Interferon gamma exhibited up to ten times higher activity after deleting 8-10 amino acid residues from the carboxy terminus of this protein. (Dobeli et al., J. Biotechnology 7:199-216 (1988).)

[108] Moreover, ample evidence demonstrates that variants often retain a biological activity similar to that of the naturally occurring protein. For example, Gayle and coworkers (J. Biol. Chem. 268:22105-22111 (1993)) conducted extensive mutational analysis of human cytokine IL-1a. They used random mutagenesis to generate over 3,500 individual IL-1a mutants that averaged 2.5 amino acid changes per variant over the entire length of the molecule. Multiple mutations were examined at every possible amino acid position. The investigators found that "[m]ost of the molecule could be altered with little effect on either [binding or biological activity]." In fact, only 23 unique amino acid sequences, out of more than 3,500 nucleotide sequences examined, produced a protein that significantly differed in activity from wild-type.

[109] Furthermore, even if deleting one or more amino acids from the N-terminus or C-terminus of a polypeptide results in modification or loss of one or more biological functions, other biological activities may still be retained. For example, the ability of a deletion variant to induce and/or to bind antibodies which recognize the secreted form will likely be retained when less than the majority of the residues of the secreted form are removed from the N-terminus or C-terminus. Whether a particular polypeptide lacking N-

or C-terminal residues of a protein retains such immunogenic activities can readily be determined by routine methods described herein and otherwise known in the art.

[110] Thus, the invention further includes polypeptide variants which show a functional activity (e.g., biological activity) of the polypeptides of the invention. Such variants include deletions, insertions, inversions, repeats, and substitutions selected according to general rules known in the art so as have little effect on activity.

[111] The present application is directed to nucleic acid molecules at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, (e.g., encoding a polypeptide having the amino acid sequence of an N and/or C terminal deletion), irrespective of whether they encode a polypeptide having functional activity. This is because even where a particular nucleic acid molecule does not encode a polypeptide having functional activity, one of skill in the art would still know how to use the nucleic acid molecule, for instance, as a hybridization probe or a polymerase chain reaction (PCR) primer. Uses of the nucleic acid molecules of the present invention that do not encode a polypeptide having functional activity include, inter alia, (1) isolating a gene or allelic or splice variants thereof in a cDNA library; (2) in situ hybridization (e.g., "FISH") to metaphase chromosomal spreads to provide precise chromosomal location of the gene, as described in Verma et al., Human Chromosomes: A Manual of Basic Techniques, Pergamon Press, New York (1988); (3) Northern Blot analysis for detecting mRNA expression in specific tissues (e.g., normal or diseased tissues); and (4) in situ hybridization (e.g., histochemistry) for detecting mRNA expression in specific tissues (e.g., normal or diseased tissues).

[112] Preferred, however, are nucleic acid molecules having sequences at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, which do, in fact, encode a polypeptide having functional activity. By a polypeptide having "functional activity" is meant, a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide of the invention for binding) to an anti-polypeptide of the invention antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide of the invention.

[113]   The functional activity of the polypeptides, and fragments, variants and derivatives of the invention, can be assayed by various methods.

[114]   For example, in one embodiment where one is assaying for the ability to bind or compete with a full-length polypeptide of the present invention for binding to an anti-polypetide antibody, various immunoassays known in the art can be used, including but not limited to, competitive and non-competitive assay systems using techniques such as radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoradiometric assays, gel diffusion precipitation reactions, immunodiffusion assays, in situ immunoassays (using colloidal gold, enzyme or radioisotope labels, for example), western blots, precipitation reactions, agglutination assays (e.g., gel agglutination assays, hemagglutination assays), complement fixation assays, immunofluorescence assays, protein A assays, and immunoelectrophoresis assays, etc. In one embodiment, antibody binding is detected by detecting a label on the primary antibody. In another embodiment, the primary antibody is detected by detecting binding of a secondary antibody or reagent to the primary antibody. In a further embodiment, the secondary antibody is labeled. Many means are known in the art for detecting binding in an immunoassay and are within the scope of the present invention.

[115]   In another embodiment, where a ligand is identified, or the ability of a polypeptide fragment, variant or derivative of the invention to multimerize is being evaluated, binding can be assayed, e.g., by means well-known in the art, such as, for example, reducing and non-reducing gel chromatography, protein affinity chromatography, and affinity blotting. See generally, Phizicky et al., Microbiol. Rev. 59:94-123 (1995). In another embodiment, the ability of physiological correlates of a polypeptide of the present invention to bind to a substrate(s) of the polypeptide of the invention can be routinely assayed using techniques known in the art.

[116]   In addition, assays described herein (see Examples) and otherwise known in the art may routinely be applied to measure the ability of polypeptides of the present invention and fragments, variants and derivatives thereof to elicit polypeptide related biological activity (either *in vitro* or *in vivo*). Other methods will be known to the skilled artisan and are within the scope of the invention.

[117]   Of course, due to the degeneracy of the genetic code, one of ordinary skill in the art will immediately recognize that a large number of the nucleic acid molecules having a sequence at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% identical to, for

example, the nucleic acid sequence of the cDNA contained in Clone ID NO:Z, the nucleic acid sequence referred to in Table 1A (SEQ ID NO:X), the nucleic acid sequence disclosed in Table 2 (e.g,. the nucleic acid sequence delineated in columns 8 and 9) or fragments thereof, will encode polypeptides "having functional activity." In fact, since degenerate variants of any of these nucleotide sequences all encode the same polypeptide, in many instances, this will be clear to the skilled artisan even without performing the above described comparison assay. It will be further recognized in the art that, for such nucleic acid molecules that are not degenerate variants, a reasonable number will also encode a polypeptide having functional activity. This is because the skilled artisan is fully aware of amino acid substitutions that are either less likely or not likely to significantly effect protein function (e.g., replacing one aliphatic amino acid with a second aliphatic amino acid), as further described below.

[118]   For example, guidance concerning how to make phenotypically silent amino acid substitutions is provided in Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," Science 247:1306-1310 (1990), wherein the authors indicate that there are two main strategies for studying the tolerance of an amino acid sequence to change.

[119]   The first strategy exploits the tolerance of amino acid substitutions by natural selection during the process of evolution. By comparing amino acid sequences in different species, conserved amino acids can be identified. These conserved amino acids are likely important for protein function. In contrast, the amino acid positions where substitutions have been tolerated by natural selection indicates that these positions are not critical for protein function. Thus, positions tolerating amino acid substitution could be modified while still maintaining biological activity of the protein.

[120]   The second strategy uses genetic engineering to introduce amino acid changes at specific positions of a cloned gene to identify regions critical for protein function. For example, site directed mutagenesis or alanine-scanning mutagenesis (introduction of single alanine mutations at every residue in the molecule) can be used. See Cunningham and Wells, Science 244:1081-1085 (1989). The resulting mutant molecules can then be tested for biological activity.

[121]   As the authors state, these two strategies have revealed that proteins are surprisingly tolerant of amino acid substitutions. The authors further indicate which amino acid changes are likely to be permissive at certain amino acid positions in the protein. For

example, most buried (within the tertiary structure of the protein) amino acid residues require nonpolar side chains, whereas few features of surface side chains are generally conserved. Moreover, tolerated conservative amino acid substitutions involve replacement of the aliphatic or hydrophobic amino acids Ala, Val, Leu and Ile; replacement of the hydroxyl residues Ser and Thr; replacement of the acidic residues Asp and Glu; replacement of the amide residues Asn and Gln, replacement of the basic residues Lys, Arg, and His; replacement of the aromatic residues Phe, Tyr, and Trp, and replacement of the small-sized amino acids Ala, Ser, Thr, Met, and Gly. Besides conservative amino acid substitution, variants of the present invention include (i) substitutions with one or more of the non-conserved amino acid residues, where the substituted amino acid residues may or may not be one encoded by the genetic code, or (ii) substitutions with one or more of the amino acid residues having a substituent group, or (iii) fusion of the mature polypeptide with another compound, such as a compound to increase the stability and/or solubility of the polypeptide (for example, polyethylene glycol), (iv) fusion of the polypeptide with additional amino acids, such as, for example, an IgG Fc fusion region peptide, serum albumin (preferably human serum albumin) or a fragment thereof, or leader or secretory sequence, or a sequence facilitating purification, or (v) fusion of the polypeptide with another compound, such as albumin (including but not limited to recombinant albumin (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)). Such variant polypeptides are deemed to be within the scope of those skilled in the art from the teachings herein.

[122]   For example, polypeptide variants containing amino acid substitutions of charged amino acids with other charged or neutral amino acids may produce proteins with improved characteristics, such as less aggregation. Aggregation of pharmaceutical formulations both reduces activity and increases clearance due to the aggregate's immunogenic activity. See Pinckard et al., Clin. Exp. Immunol. 2:331-340 (1967); Robbins et al., Diabetes 36: 838-845 (1987); Cleland et al., Crit. Rev. Therapeutic Drug Carrier Systems 10:307-377 (1993).

[123]   A further embodiment of the invention relates to polypeptides which comprise the amino acid sequence of a polypeptide having an amino acid sequence which contains at least one amino acid substitution, but not more than 50 amino acid substitutions, even more preferably, not more than 40 amino acid substitutions, still more preferably, not more than 30 amino acid substitutions, and still even more preferably, not more than 20 amino acid

substitutions from a polypeptide sequence disclosed herein. Of course it is highly preferable for a polypeptide to have an amino acid sequence which comprises the amino acid sequence of a polypeptide of SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X, an amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columnns 8 and 9 of Table 2, an amino acid sequence encoded by the complement of SEQ ID NO:X, and/or an amino acid sequence encoded by cDNA contained in Clone ID NO:Z which contains, in order of ever-increasing preference, at least one, but not more than 10, 9, 8, 7, 6, 5, 4, 3, 2 or 1 amino acid substitutions.

[124] In specific embodiments, the polypeptides of the invention comprise, or alternatively, consist of, fragments or variants of a reference amino acid sequence selected from: (a) the amino acid sequence of SEQ ID NO:Y or fragments thereof (e.g., the mature form and/or other fragments described herein); (b) the amino acid sequence encoded by SEQ ID NO:X or fragments thereof; (c) the amino acid sequence encoded by the complement of SEQ ID NO:X or fragments thereof; (d) the amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or fragments thereof; and (e) the amino acid sequence encoded by cDNA contained in Clone ID NO:Z or fragments thereof; wherein the fragments or variants have 1-5, 5-10, 5-25, 5-50, 10-50 or 50-150, amino acid residue additions, substitutions, and/or deletions when compared to the reference amino acid sequence. In preferred embodiments, the amino acid substitutions are conservative. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Polynucleotide and Polypeptide Fragments

[125] The present invention is also directed to polynucleotide fragments of the polynucleotides (nucleic acids) of the invention. In the present invention, a "polynucleotide fragment" refers to a polynucleotide having a nucleic acid sequence which, for example: is a portion of the cDNA contained in Clone ID NO:Z or the complementary strand thereto; is a portion of the polynucleotide sequence encoding the polypeptide encoded by the cDNA contained in Clone ID NO:Z or the complementary strand thereto; is a portion of a polynucleotide sequence encoding the amino acid sequence encoded by the region of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto; is a portion of the polynucleotide sequence of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto; is a portion of the polynucleotide sequence in

SEQ ID NO:X or the complementary strand thereto; is a polynucleotide sequence encoding a portion of the polypeptide of SEQ ID NO:Y; is a polynucleotide sequence encoding a portion of a polypeptide encoded by SEQ ID NO:X; is a polynucleotide sequence encoding a portion of a polypeptide encoded by the complement of the polynucleotide sequence in SEQ ID NO:X; is a portion of a polynucleotide sequence encoding the amino acid sequence encoded by the region of SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto; or is a portion of the polynucleotide sequence of SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto.

[126]   The polynucleotide fragments of the invention are preferably at least about 15 nt, and more preferably at least about 20 nt, still more preferably at least about 30 nt, and even more preferably, at least about 40 nt, at least about 50 nt, at least about 75 nt, or at least about 150 nt in length. A fragment "at least 20 nt in length," for example, is intended to include 20 or more contiguous bases from the cDNA sequence contained in Clone ID NO:Z, or the nucleotide sequence shown in SEQ ID NO:X or the complementary stand thereto. In this context "about" includes the particularly recited value or a value larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. These nucleotide fragments have uses that include, but are not limited to, as diagnostic probes and primers as discussed herein. Of course, larger fragments (e.g., at least 160, 170, 180, 190, 200, 250, 500, 600, 1000, or 2000 nucleotides in length) are also encompassed by the invention.

[127]   Moreover, representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 601-650, 651-700, 701-750, 751-800, 801-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, 3551-3600, 3601-3650, 3651-3700, 3701-3750, 3751-3800, 3801-3850, 3851-3900, 3901-3950, 3951-4000, 4001-4050, 4051-4100, 4101-4150, 4151-4200, 4201-4250, 4251-4300, 4301-4350, 4351-

4400, 4401-4450, 4451-4500, 4501-4550, 4551-4600, 4601-4650, 4651-4700, 4701-4750, 4751-4800, 4801-4850, 4851-4900, 4901-4950, 4951-5000, 5001-5050, 5051-5100, 5101-5150, 5151-5200, 5201-5250, 5251-5300, 5301-5350, 5351-5400, 5401-5450, 5451-5500, 5501-5550, 5551-5600, 5601-5650, 5651-5700, 5701-5750, 5751-5800, 5801-5850, 5851-5900, 5901-5950, 5951-6000, 6001-6050, 6051-6100, 6101-6150, 6151-6200, 6201-6250, 6251-6300, 6301-6350, 6351-6400, 6401-6450, 6451-6500, 6501-6550, 6551-6600, 6601-6650, 6651-6700, 6701-6750, 6751-6800, 6801-6850, 6851-6900, 6901-6950, 6951-7000, 7001-7050, 7051-7100, 7101-7150, 7151-7200, 7201-7250, 7251-7300 or 7301 to the end of SEQ ID NO:X, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity). More preferably, these polynucleotides can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[128]   Further representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 601-650, 651-700, 701-750, 751-800, 801-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, 3551-3600, 3601-3650, 3651-3700, 3701-3750, 3751-3800, 3801-3850, 3851-3900, 3901-3950, 3951-4000, 4001-4050, 4051-4100, 4101-4150, 4151-4200, 4201-4250, 4251-4300, 4301-4350, 4351-4400, 4401-4450, 4451-4500, 4501-4550, 4551-4600, 4601-4650, 4651-4700, 4701-4750, 4751-4800, 4801-4850, 4851-4900, 4901-4950, 4951-5000, 5001-5050, 5051-5100, 5101-5150, 5151-5200, 5201-5250, 5251-5300, 5301-5350, 5351-5400, 5401-5450, 5451-5500, 5501-5550, 5551-5600, 5601-5650, 5651-5700, 5701-5750, 5751-5800, 5801-5850, 5851-

5900, 5901-5950, 5951-6000, 6001-6050, 6051-6100, 6101-6150, 6151-6200, 6201-6250, 6251-6300, 6301-6350, 6351-6400, 6401-6450, 6451-6500, 6501-6550, 6551-6600, 6601-6650, 6651-6700, 6701-6750, 6751-6800, 6801-6850, 6851-6900, 6901-6950, 6951-7000, 7001-7050, 7051-7100, 7101-7150, 7151-7200, 7201-7250, 7251-7300 or 7301 to the end of the cDNA sequence contained in Clone ID NO:Z, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity). More preferably, these polynucleotides can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[129]   Moreover, representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a nucleic acid sequence comprising one, two, three, four, five, six, seven, eight, nine, ten, or more of the above described polynucleotide fragments of the invention in combination with a polynucleotide sequence delineated in Table 1B column 6. Additional, representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a nucleic acid sequence comprising one, two, three, four, five, six, seven, eight, nine, ten, or more of the above described polynucleotide fragments of the invention in combination with a polynucleotide sequence that is the complementary strand of a sequence delineated in column 6 of Table 1B.   In further embodiments, the above-described polynucleotide fragments of the invention comprise, or alternatively consist of, sequences delineated in Table 1B, column 6, and have a nucleic acid sequence which is different from that of the BAC fragment having the sequence disclosed in SEQ ID NO:B (see Table 1B, column 5). In additional embodiments, the above-described polynucleotide fragments of the invention comprise, or alternatively consist of, sequences delineated in Table 1B, column 6, and have a nucleic acid sequence which is different from that published for the BAC clone identified as BAC ID NO:A (see Table 1B, column 4). In additional embodiments, the above-described polynucleotides of the invention comprise, or alternatively consist of, sequences delineated Table 1B, column 6, and have a nucleic acid sequence which is different from that contained in the BAC clone identified as BAC ID NO:A (see Table 1B, column 4). Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that

bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides and polypeptides are also encompassed by the invention.

[130]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more fragments of the sequences delineated in column 6 of Table 1B, and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1B, column 2) or fragments or variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[131]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more fragments of the sequences delineated in column 6 of Table 1B which correspond to the same Clone ID NO:Z (see Table 1B, column 1), and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1A or 1B) or fragments or variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[132]   In further specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more fragments of the sequences delineated in the same row of column 6 of Table 1B, and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1A or 1B) or fragments or variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[133]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of the sequence of SEQ ID NO:X are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids that encode these polypeptides, and antibodies that

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bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[134]   In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of a fragment or variant of the sequence of SEQ ID NO:X (e.g., as described herein) are directly contiguous Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[135]   In further specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of a fragment or variant of the sequence of SEQ ID NO:X and the 5' 10 polynucleotides of the sequence of one of the sequences delineated in column 6 of Table 1B are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[136]   In specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of another sequence in column 6 are directly contiguous. In preferred embodiments, the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B is directly contiguous with the 5' 10 polynucleotides of the next sequential exon delineated in Table 1B, column 6. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower

stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[137]   In the present invention, a "polypeptide fragment" refers to an amino acid sequence which is a portion of that contained in SEQ ID NO:Y, a portion of an amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columnns 8 and 9 of Table 2, a portion of an amino acid sequence encoded by the polynucleotide sequence of SEQ ID NO:X, a portion of an amino acid sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, and/or a portion of an amino acid sequence encoded by the cDNA contained in Clone ID NO:Z. Protein (polypeptide) fragments may be "free-standing," or comprised within a larger polypeptide of which the fragment forms a part or region, most preferably as a single continuous region. Representative examples of polypeptide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 101-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, 1181-1200, 1201-1220, 1221-1240, 1241-1260, 1261-1280, 1281-1300, 1301-1320, 1321-1340, 1341-1360, 1361-1380, 1381-1400, 1401-1420, 1421-1440, or 1441 to the end of the coding region of cDNA and SEQ ID NO: Y. In a preferred embodiment, polypeptide fragments of the invention include, for example, fragments comprising, or alternatively consisting of, from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 101-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, 1181-1200,

1201-1220, 1221-1240, 1241-1260, 1261-1280, 1281-1300, 1301-1320, 1321-1340, 1341-1360, 1361-1380, 1381-1400, 1401-1420, 1421-1440, or 1441 to the end of the coding region of SEQ ID NO:Y. Moreover, polypeptide fragments of the invention may be at least about 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, or 150 amino acids in length. In this context "about" includes the particularly recited ranges or values, or ranges or values larger or smaller by several (5, 4, 3, 2, or 1) amino acids, at either extreme or at both extremes. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

[138]   Even if deletion of one or more amino acids from the N-terminus of a protein results in modification of loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example, the ability of shortened muteins to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptides generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the N-terminus. Whether a particular polypeptide lacking N-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted N-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

[139]   Accordingly, polypeptide fragments include the secreted protein as well as the mature form. Further preferred polypeptide fragments include the secreted protein or the mature form having a continuous series of deleted residues from the amino or the carboxy terminus, or both. For example, any number of amino acids, ranging from 1-60, can be deleted from the amino terminus of either the secreted polypeptide or the mature form. Similarly, any number of amino acids, ranging from 1-30, can be deleted from the carboxy terminus of the secreted protein or mature form. Furthermore, any combination of the above amino and carboxy terminus deletions are preferred. Similarly, polynucleotides encoding these polypeptide fragments are also preferred.

[140]   The present invention further provides polypeptides having one or more residues deleted from the amino terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X or the complement thereof, a polypeptide encoded by

the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, a polypeptide encoded by the portion of SEQ ID NO:B as defined in column 6 of Table 1B, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z). In particular, N-terminal deletions may be described by the general formula m-q, where q is a whole integer representing the total number of amino acid residues in a polypeptide of the invention (e.g., the polypeptide disclosed in SEQ ID NO:Y, or the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2), and m is defined as any integer ranging from 2 to q-6. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[141] The present invention further provides polypeptides having one or more residues from the carboxy terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, a polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z). In particular, C-terminal deletions may be described by the general formula 1-n, where n is any whole integer ranging from 6 to q-1, and where n corresponds to the position of amino acid residue in a polypeptide of the invention. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[142] In addition, any of the above described N- or C-terminal deletions can be combined to produce a N- and C-terminal deleted polypeptide. The invention also provides polypeptides having one or more amino acids deleted from both the amino and the carboxyl termini, which may be described generally as having residues m-n of a polypeptide encoded by SEQ ID NO:X (e.g., including, but not limited to, the preferred polypeptide disclosed as SEQ ID NO:Y and the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2), the cDNA contained in Clone ID NO:Z, and/or the complement thereof, where n and m are integers as described above. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[143] Also as mentioned above, even if deletion of one or more amino acids from the C-terminus of a protein results in modification of loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example the ability of the shortened mutein to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptide generally will be retained when less than the majority of the residues of the

complete or mature polypeptide are removed from the C-terminus. Whether a particular polypeptide lacking C-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted C-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

[144] The present application is also directed to proteins containing polypeptides at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a polypeptide sequence set forth herein. In preferred embodiments, the application is directed to proteins containing polypeptides at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to polypeptides having the amino acid sequence of the specific N- and C-terminal deletions. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[145] Any polypeptide sequence encoded by, for example, the polynucleotide sequences set forth as SEQ ID NO:X or the complement thereof, (presented, for example, in Tables 1A and 2), the cDNA contained in Clone ID NO:Z, or the polynucleotide sequence as defined in column 6 of Table 1B, may be analyzed to determine certain preferred regions of the polypeptide. For example, the amino acid sequence of a polypeptide encoded by a polynucleotide sequence of SEQ ID NO:X (e.g., the polypeptide of SEQ ID NO:Y and the polypeptide encoded by the portion of SEQ ID NO:X as defined in columnns 8 and 9 of Table 2) or the cDNA contained in Clone ID NO:Z may be analyzed using the default parameters of the DNASTAR computer algorithm (DNASTAR, Inc., 1228 S. Park St., Madison, WI 53715 USA; http://www.dnastar.com/).

[146] Polypeptide regions that may be routinely obtained using the DNASTAR computer algorithm include, but are not limited to, Garnier-Robson alpha-regions, beta-regions, turn-regions, and coil-regions; Chou-Fasman alpha-regions, beta-regions, and turn-regions; Kyte-Doolittle hydrophilic regions and hydrophobic regions; Eisenberg alpha- and beta-amphipathic regions; Karplus-Schulz flexible regions; Emini surface-forming regions; and Jameson-Wolf regions of high antigenic index. Among highly preferred polynucleotides of the invention in this regard are those that encode polypeptides comprising regions that combine several structural features, such as several (e.g., 1, 2, 3 or 4) of the features set out above.

[147]   Additionally, Kyte-Doolittle hydrophilic regions and hydrophobic regions, Emini surface-forming regions, and Jameson-Wolf regions of high antigenic index (i.e., containing four or more contiguous amino acids having an antigenic index of greater than or equal to 1.5, as identified using the default parameters of the Jameson-Wolf program) can routinely be used to determine polypeptide regions that exhibit a high degree of potential for antigenicity. Regions of high antigenicity are determined from data by DNASTAR analysis by choosing values which represent regions of the polypeptide which are likely to be exposed on the surface of the polypeptide in an environment in which antigen recognition may occur in the process of initiation of an immune response.

[148] . Preferred polypeptide fragments of the invention are fragments comprising, or alternatively, consisting of, an amino acid sequence that displays a functional activity (e.g. biological activity) of the polypeptide sequence of which the amino acid sequence is a fragment. By a polypeptide displaying a "functional activity" is meant a polypeptide capable of one or more known functional activities associated with a full-length protein, such as, for example, biological activity, antigenicity, immunogenicity, and/or multimerization, as described herein.

[149]   Other preferred polypeptide fragments are biologically active fragments. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

[150]   In preferred embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the antigenic fragments of the polypeptide of SEQ ID NO:Y, or portions thereof. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[151]   The present invention encompasses polypeptides comprising, or alternatively consisting of, an epitope of: the polypeptide sequence shown in SEQ ID NO:Y; a polypeptide sequence encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2; the polypeptide sequence encoded by the portion of SEQ ID NO:B as defined in column 6 of Table 1B or the complement thereto; the polypeptide sequence encoded by the cDNA contained in Clone ID NO:Z; or the polypeptide sequence encoded by a polynucleotide that hybridizes to the sequence of SEQ ID NO:X, the complement of the

sequence of SEQ ID NO:X, the complement of a portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, or the cDNA sequence contained in Clone ID NO:Z under stringent hybridization conditions or alternatively, under lower stringency hybridization as defined *supra*. The present invention further encompasses polynucleotide sequences encoding an epitope of a polypeptide sequence of the invention (such as, for example, the sequence disclosed in SEQ ID NO:X, or a fragment thereof), polynucleotide sequences of the complementary strand of a polynucleotide sequence encoding an epitope of the invention, and polynucleotide sequences which hybridize to the complementary strand under stringent hybridization conditions or alternatively, under lower stringency hybridization conditions defined *supra*.

[152]   The term "epitopes," as used herein, refers to portions of a polypeptide having antigenic or immunogenic activity in an animal, preferably a mammal, and most preferably in a human. In a preferred embodiment, the present invention encompasses a polypeptide comprising an epitope, as well as the polynucleotide encoding this polypeptide. An "immunogenic epitope," as used herein, is defined as a portion of a protein that elicits an antibody response in an animal, as determined by any method known in the art, for example, by the methods for generating antibodies described *infra*. (See, for example, Geysen et al., Proc. Natl. Acad. Sci. USA 81:3998- 4002 (1983)). The term "antigenic epitope," as used herein, is defined as a portion of a protein to which an antibody can immunospecifically bind its antigen as determined by any method well known in the art, for example, by the immunoassays described herein. Immunospecific binding excludes non-specific binding but does not necessarily exclude cross- reactivity with other antigens. Antigenic epitopes need not necessarily be immunogenic.

[153]   Fragments which function as epitopes may be produced by any conventional means. (See, e.g., Houghten, R. A., Proc. Natl. Acad. Sci. USA 82:5131-5135 (1985) further described in U.S. Patent No. 4,631,211.)

[154]   In the present invention, antigenic epitopes preferably contain a sequence of at least 4, at least 5, at least 6, at least 7, more preferably at least 8, at least 9, at least 10, at least 11, at least 12, at least 13, at least 14, at least 15, at least 20, at least 25, at least 30, at least 40, at least 50, and, most preferably, between about 15 to about 30 amino acids. Preferred polypeptides comprising immunogenic or antigenic epitopes are at least 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or 100 amino acid residues in length. Additional non-exclusive preferred antigenic epitopes include the antigenic

epitopes disclosed herein, as well as portions thereof. Antigenic epitopes are useful, for example, to raise antibodies, including monoclonal antibodies, that specifically bind the epitope. Preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these antigenic epitopes. Antigenic epitopes can be used as the target molecules in immunoassays. (See, for instance, Wilson et al., Cell 37:767-778 (1984); Sutcliffe et al., Science 219:660-666 (1983)).

[155]   Non-limiting examples of epitopes of polypeptides that can be used to generate antibodies of the invention include a polypeptide comprising, or alternatively consisting of, at least one, two, three, four, five, six or more of the portion(s) of SEQ ID NO:Y specified in column 7 of Table 1A. These polypeptide fragments have been determined to bear antigenic epitopes of the proteins of the invention by the analysis of the Jameson-Wolf antigenic index which is included in the DNAStar suite of computer programs. By "comprise" it is intended that a polypeptide contains at least one, two, three, four, five, six or more of the portion(s) of SEQ ID NO:Y shown in column 7 of Table 1A, but it may contain additional flanking residues on either the amino or carboxyl termini of the recited portion. Such additional flanking sequences are preferably sequences naturally found adjacent to the portion; i.e., contiguous sequence shown in SEQ ID NO:Y. The flanking sequence may, however, be sequences from a heterolgous polypeptide, such as from another protein described herein or from a heterologous polypeptide not described herein. In particular embodiments, epitope portions of a polypeptide of the invention comprise one, two, three, or more of the portions of SEQ ID NO:Y shown in column 7 of Table 1A.

[156]   Similarly, immunogenic epitopes can be used, for example, to induce antibodies according to methods well known in the art. See, for instance, Sutcliffe et al., *supra*; Wilson et al., *supra*; Chow et al., Proc. Natl. Acad. Sci. USA 82:910-914; and Bittle et al., J. Gen. Virol. 66:2347-2354 (1985). Preferred immunogenic epitopes include the immunogenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these immunogenic epitopes. The polypeptides comprising one or more immunogenic epitopes may be presented for eliciting an antibody response together with a carrier protein, such as an albumin, to an animal system (such as rabbit or mouse), or, if the polypeptide is of sufficient length (at least about 25 amino acids), the polypeptide may be presented without a carrier. However, immunogenic epitopes comprising as few as 8 to 10 amino acids have been shown to be sufficient to raise antibodies capable of binding to, at the very least, linear epitopes in a denatured polypeptide (e.g., in Western blotting).

[157]   Epitope-bearing polypeptides of the present invention may be used to induce antibodies according to methods well known in the art including, but not limited to, *in vivo* immunization, in vitro immunization, and phage display methods. See, e.g., Sutcliffe et al., *supra*; Wilson et al., *supra*, and Bittle et al., J. Gen. Virol., 66:2347-2354 (1985). If *in vivo* immunization is used, animals may be immunized with free peptide; however, anti-peptide antibody titer may be boosted by coupling the peptide to a macromolecular carrier, such as keyhole limpet hemacyanin (KLH) or tetanus toxoid. For instance, peptides containing cysteine residues may be coupled to a carrier using a linker such as maleimidobenzoyl- N-hydroxysuccinimide ester (MBS), while other peptides may be coupled to carriers using a more general linking agent such as glutaraldehyde. Animals such as rabbits, rats and mice are immunized with either free or carrier- coupled peptides, for instance, by intraperitoneal and/or intradermal injection of emulsions containing about 100 μg of peptide or carrier protein and Freund's adjuvant or any other adjuvant known for stimulating an immune response. Several booster injections may be needed, for instance, at intervals of about two weeks, to provide a useful titer of anti-peptide antibody which can be detected, for example, by ELISA assay using free peptide adsorbed to a solid surface. The titer of anti-peptide antibodies in serum from an immunized animal may be increased by selection of anti-peptide antibodies, for instance, by adsorption to the peptide on a solid support and elution of the selected antibodies according to methods well known in the art.

[158]   As one of skill in the art will appreciate, and as discussed above, the polypeptides of the present invention (e.g., those comprising an immunogenic or antigenic epitope) can be fused to heterologous polypeptide sequences. For example, polypeptides of the present invention (including fragments or variants thereof), may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM), or portions thereof (CH1, CH2, CH3, or any combination thereof and portions thereof, resulting in chimeric polypeptides. By way of another non-limiting example, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) may be fused with albumin (including but not limited to recombinant human serum albumin or fragments or variants thereof (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)). In a preferred embodiment, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) are fused with the mature form of human serum albumin (i.e.,

amino acids 1 – 585 of human serum albumin as shown in Figures 1 and 2 of EP Patent 0 322 094) which is herein incorporated by reference in its entirety. In another preferred embodiment, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) are fused with polypeptide fragments comprising, or alternatively consisting of, amino acid residues 1-z of human serum albumin, where z is an integer from 369 to 419, as described in U.S. Patent 5,766,883 herein incorporated by reference in its entirety. Polypeptides and/or antibodies of the present invention (including fragments or variants thereof) may be fused to either the N- or C-terminal end of the heterologous protein (e.g., immunoglobulin Fc polypeptide or human serum albumin polypeptide). Polynucleotides encoding fusion proteins of the invention are also encompassed by the invention.

[159]   Such fusion proteins as those described above may facilitate purification and may increase half-life *in vivo*. This has been shown for chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light chains of mammalian immunoglobulins. See, e.g., EP 394,827; Traunecker et al., Nature, 331:84-86 (1988). Enhanced delivery of an antigen across the epithelial barrier to the immune system has been demonstrated for antigens (e.g., insulin) conjugated to an FcRn binding partner such as IgG or Fc fragments (see, e.g., PCT Publications WO 96/22024 and WO 99/04813). IgG fusion proteins that have a disulfide-linked dimeric structure due to the IgG portion desulfide bonds have also been found to be more efficient in binding and neutralizing other molecules than monomeric polypeptides or fragments thereof alone. See, e.g., Fountoulakis et al., J. Biochem., 270:3958-3964 (1995). Nucleic acids encoding the above epitopes can also be recombined with a gene of interest as an epitope tag (e.g., the hemagglutinin (HA) tag or flag tag) to aid in detection and purification of the expressed polypeptide. For example, a system described by Janknecht et al. allows for the ready purification of non-denatured fusion proteins expressed in human cell lines (Janknecht et al., 1991, Proc. Natl. Acad. Sci. USA 88:8972-897). In this system, the gene of interest is subcloned into a vaccinia recombination plasmid such that the open reading frame of the gene is translationally fused to an amino-terminal tag consisting of six histidine residues. The tag serves as a matrix binding domain for the fusion protein. Extracts from cells infected with the recombinant vaccinia virus are loaded onto Ni2+ nitriloacetic acid-agarose column and histidine-tagged proteins can be selectively eluted with imidazole-containing buffers.

Fusion Proteins

[160]   Any polypeptide of the present invention can be used to generate fusion proteins. For example, the polypeptide of the present invention, when fused to a second protein, can be used as an antigenic tag.   Antibodies raised against the polypeptide of the present invention can be used to indirectly detect the second protein by binding to the polypeptide. Moreover, because secreted proteins target cellular locations based on trafficking signals, polypeptides of the present invention which are shown to be secreted can be used as targeting molecules once fused to other proteins.

[161]   Examples of domains that can be fused to polypeptides of the present invention include not only heterologous signal sequences, but also other heterologous functional regions.   The fusion does not necessarily need to be direct, but may occur through linker sequences.

[162]   In certain preferred embodiments, proteins of the invention are fusion proteins comprising an amino acid sequence that is an N and/or C- terminal deletion of a polypeptide of the invention.   In preferred embodiments, the invention is directed to a fusion protein comprising an amino acid sequence that is at least 90%, 95%, 96%, 97%, 98% or 99% identical to a polypeptide sequence of the invention. Polynucleotides encoding these proteins are also encompassed by the invention.

[163]   Moreover, fusion proteins may also be engineered to improve characteristics of the polypeptide of the present invention.   For instance, a region of additional amino acids, particularly charged amino acids, may be added to the N-terminus of the polypeptide to improve stability and persistence during purification from the host cell or subsequent handling and storage.   Also, peptide moieties may be added to the polypeptide to facilitate purification.   Such regions may be removed prior to final preparation of the polypeptide. The addition of peptide moieties to facilitate handling of polypeptides are familiar and routine techniques in the art.

[164]   As one of skill in the art will appreciate that, as discussed above, polypeptides of the present invention, and epitope-bearing fragments thereof, can be combined with heterologous polypeptide sequences.   For example, the polypeptides of the present invention may be fused with heterologous polypeptide sequences, for example, the polypeptides of the present invention may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM) or portions thereof (CH1, CH2, CH3, and any

combination thereof, including both entire domains and portions thereof), or albumin (including, but not limited to, native or recombinant human albumin or fragments or variants thereof (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)), resulting in chimeric polypeptides. For example, EP-A-O 464 533 (Canadian counterpart 2045869) discloses fusion proteins comprising various portions of constant region of immunoglobulin molecules together with another human protein or part thereof. In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties (EP-A 0232 262). Alternatively, deleting the Fc part after the fusion protein has been expressed, detected, and purified, would be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. See, D. Bennett et al., J. Molecular Recognition 8:52-58 (1995); K. Johanson et al., J. Biol. Chem. 270:9459-9471 (1995).

[165]   Moreover, the polypeptides of the present invention can be fused to marker sequences, such as a polypeptide which facilitates purification of the fused polypeptide. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Another peptide tag useful for purification, the "HA" tag, corresponds to an epitope derived from the influenza hemagglutinin protein (Wilson et al., Cell 37:767 (1984)).

[166]   Additional fusion proteins of the invention may be generated through the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling"). DNA shuffling may be employed to modulate the activities of polypeptides of the invention, such methods can be used to generate polypeptides with altered activity, as well as agonists and antagonists of the polypeptides. See, generally, U.S. Patent Nos. 5,605,793; 5,811,238; 5,830,721; 5,834,252; and 5,837,458, and Patten et al., Curr. Opinion Biotechnol. 8:724-33 (1997); Harayama, Trends Biotechnol. 16(2):76-82 (1998); Hansson, et al., J. Mol. Biol. 287:265-76 (1999);

and Lorenzo and Blasco, Biotechniques 24(2):308- 13 (1998) (each of these patents and publications are hereby incorporated by reference in its entirety). In one embodiment, alteration of polynucleotides corresponding to SEQ ID NO:X and the polypeptides encoded by these polynucleotides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA segments by homologous or site-specific recombination to generate variation in the polynucleotide sequence. In another embodiment, polynucleotides of the invention, or the encoded polypeptides, may be altered by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts, domains, fragments, etc., of a polynucleotide encoding a polypeptide of the invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc. of one or more heterologous molecules.

[167] Thus, any of these above fusions can be engineered using the polynucleotides or the polypeptides of the present invention.

Recombinant and Synthetic Production of Polypeptides of the Invention

[168] The present invention also relates to vectors containing the polynucleotide of the present invention, host cells, and the production of polypeptides by synthetic and recombinant techniques. The vector may be, for example, a phage, plasmid, viral, or retroviral vector. Retroviral vectors may be replication competent or replication defective. In the latter case, viral propagation generally will occur only in complementing host cells.

[169] The polynucleotides of the invention may be joined to a vector containing a selectable marker for propagation in a host. Generally, a plasmid vector is introduced in a precipitate, such as a calcium phosphate precipitate, or in a complex with a charged lipid. If the vector is a virus, it may be packaged in vitro using an appropriate packaging cell line and then transduced into host cells.

[170] The polynucleotide insert should be operatively linked to an appropriate promoter, such as the phage lambda PL promoter, the E. coli lac, trp, phoA and tac promoters, the SV40 early and late promoters and promoters of retroviral LTRs, to name a few. Other suitable promoters will be known to the skilled artisan. The expression constructs will further contain sites for transcription initiation, termination, and, in the transcribed region, a ribosome binding site for translation. The coding portion of the transcripts expressed by the constructs will preferably include a translation initiating codon

at the beginning and a termination codon (UAA, UGA or UAG) appropriately positioned at the end of the polypeptide to be translated.

[171]   As indicated, the expression vectors will preferably include at least one selectable marker. Such markers include dihydrofolate reductase, G418, glutamine synthase, or neomycin resistance for eukaryotic cell culture, and tetracycline, kanamycin or ampicillin resistance genes for culturing in E. coli and other bacteria. Representative examples of appropriate hosts include, but are not limited to, bacterial cells, such as E. coli, Streptomyces and Salmonella typhimurium cells; fungal cells, such as yeast cells (e.g., Saccharomyces cerevisiae or Pichia pastoris (ATCC Accession No. 201178)); insect cells such as Drosophila S2 and Spodoptera Sf9 cells; animal cells such as CHO, COS, 293, and Bowes melanoma cells; and plant cells. Appropriate culture mediums and conditions for the above-described host cells are known in the art.

[172]   Among vectors preferred for use in bacteria include pQE70, pQE60 and pQE-9, available from QIAGEN, Inc.; pBluescript vectors, Phagescript vectors, pNH8A, pNH16a, pNH18A, pNH46A, available from Stratagene Cloning Systems, Inc.; and ptrc99a, pKK223-3, pKK233-3, pDR540, pRIT5 available from Pharmacia Biotech, Inc. Among preferred eukaryotic vectors are pWLNEO, pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; and pSVK3, pBPV, pMSG and pSVL available from Pharmacia. Preferred expression vectors for use in yeast systems include, but are not limited to pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalph, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, pPIC9K, and PAO815 (all available from Invitrogen, Carlbad, CA). Other suitable vectors will be readily apparent to the skilled artisan.

[173]   Vectors which use glutamine synthase (GS) or DHFR as the selectable markers can be amplified in the presence of the drugs methionine sulphoximine or methotrexate, respectively. An advantage of glutamine synthase based vectors are the availabilty of cell lines (e.g., the murine myeloma cell line, NS0) which are glutamine synthase negative. Glutamine synthase expression systems can also function in glutamine synthase expressing cells (e.g., Chinese Hamster Ovary (CHO) cells) by providing additional inhibitor to prevent the functioning of the endogenous gene. A glutamine synthase expression system and components thereof are detailed in PCT publications: WO87/04462; WO86/05807; WO89/01036; WO89/10404; and WO91/06657, which are hereby incorporated in their entireties by reference herein. Additionally, glutamine synthase expression vectors can be obtained from Lonza Biologics, Inc. (Portsmouth, NH). Expression and production of